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# The Mining Journal,

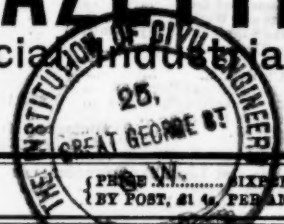
## RAILWAY AND COMMERCIAL GAZETTE:

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No. 3070.—Vol. LXIV.

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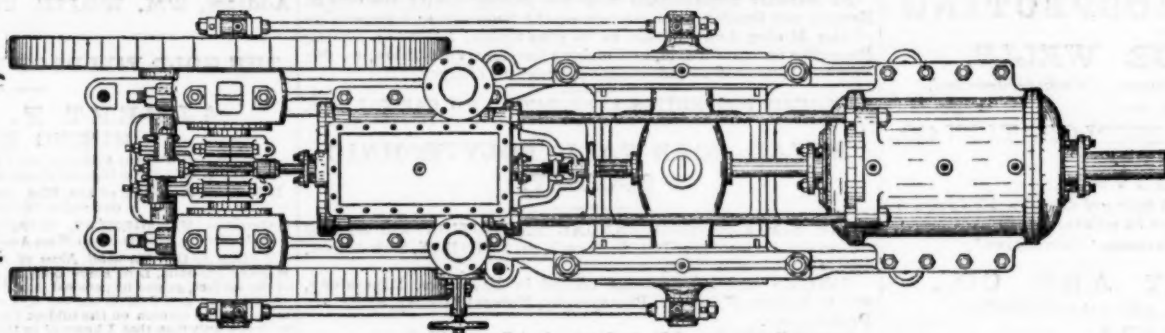
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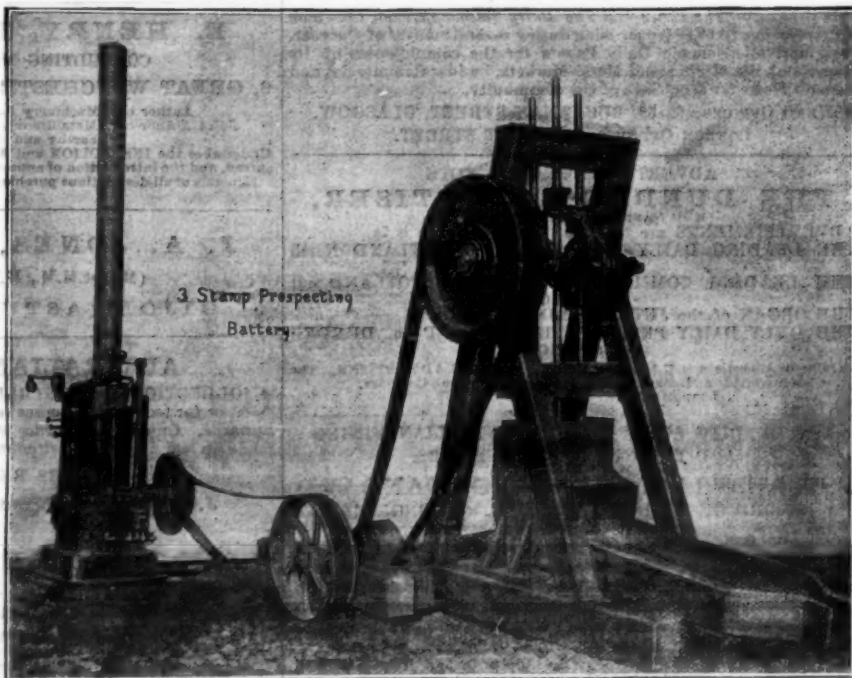
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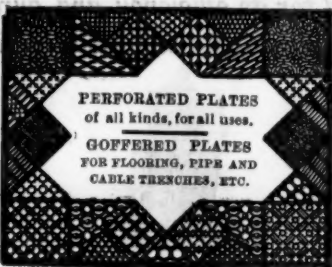
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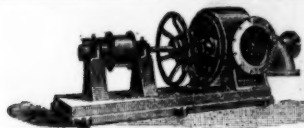


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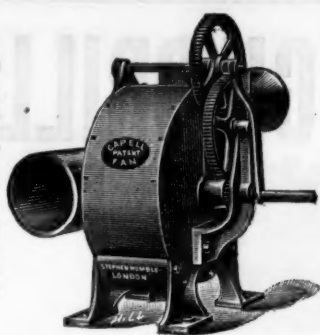
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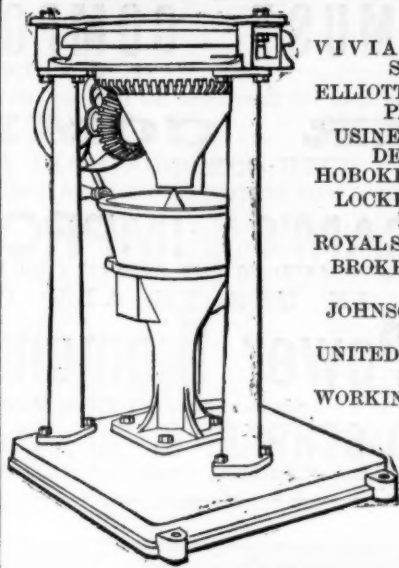
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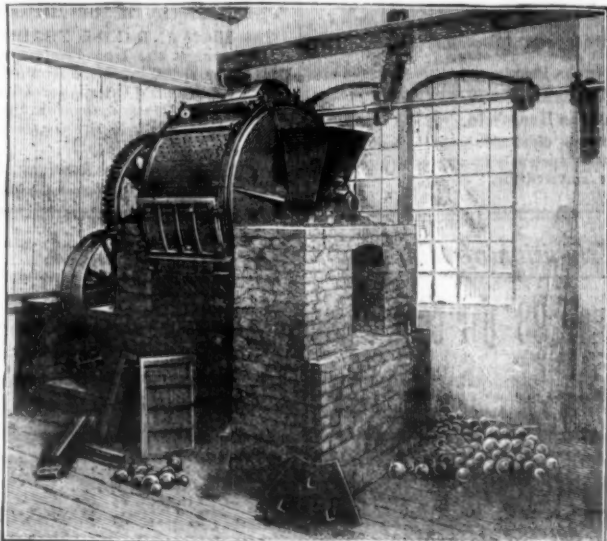
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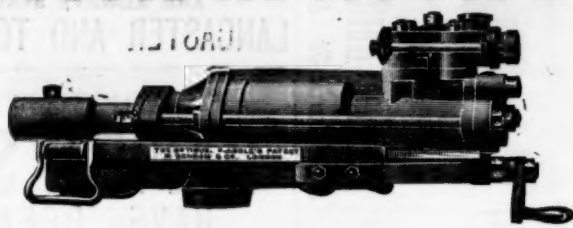
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Belvoir, Grantham, Dec. 1st, 1879.

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Master of the Belvoir Hounds.

From Lord Haddington.

Tynningham, Prestonkirk, N.B., December 27th, 1885.

SIRS,—Elliman's Royal Embrocation is used in my stables, and I consider it indispensable in any stable, but especially in the stable of a Master of Hounds.

HADDINGTON.

Master of the Berwickshire Hounds.

From the Earl of Harrington.

Jan. 9th, 1889.

SIRS,—Elliman's Royal Embrocation is used in my stables, and I consider it the best that I can obtain.

HARRINGTON.

Master of the South Wilts Hounds.

From Lord Greville.

Clonhugh, Mullingar, Ireland, June 22nd, 1892.

SIRS,—Elliman's Royal Embrocation is used in my stables, and always gives the greatest satisfaction.

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Gold Medal, International Exhibition, Paris, 1889.

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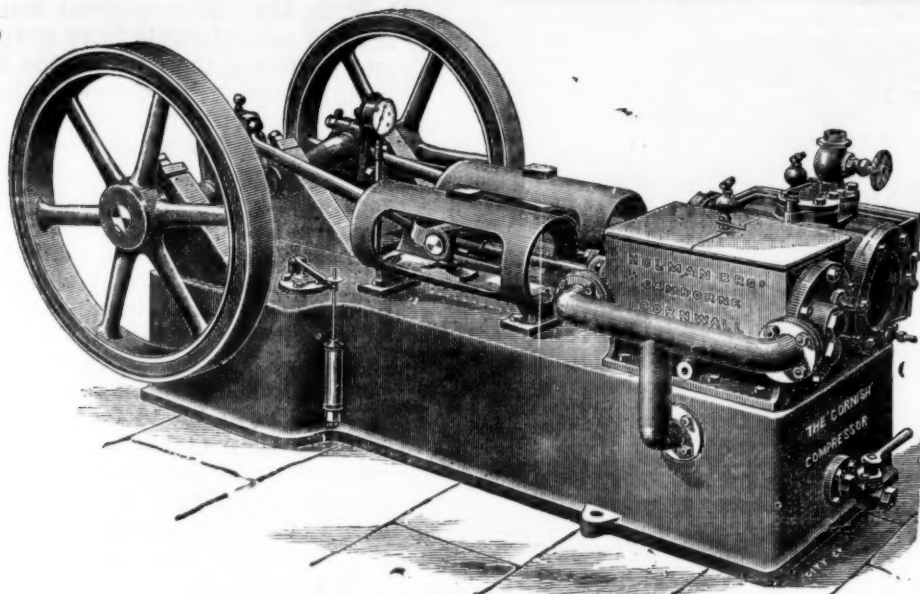
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At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour.

At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE** **46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

Estimates for **ROCK BORING PLANT** and **GENERAL MINING MACHINERY** on Application.

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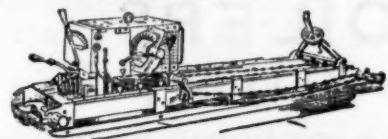
**ELECTRIC LIGHT & TRANSMISSION OF POWER PLANTS**

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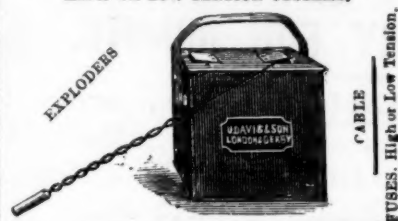
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**Sec. A. MATHEMATICAL, MINING INSTRUMENTS, MINERS' LAMPS, &c.**  
**Sec. B. ELECTRICAL PLANTS AND FITTINGS.**

**HENDERSON'S RAPID TRAVERSER.**

**GOLD MEDAL, LONDON, 1892.**

**GOLD MEDAL, MELBOURNE, 1881.**

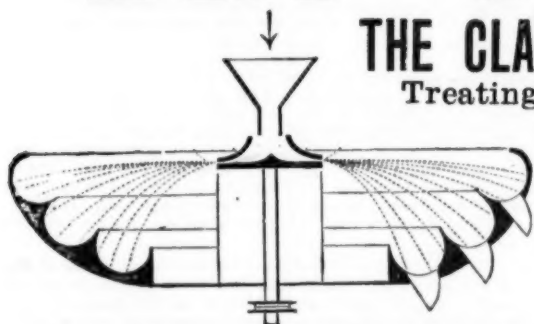


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**Terms for Experimental Concentration, and for Supply of Machines on Application.**

## NEW PATENTS.

**LIST OF APPLICATIONS** for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 16798 Walter William McLauchlan, 14, Irwell Terrace, Lower Broughton, Manchester.—Improvements in the lighting and in lamps used in coal mines and the like, by electricity.
- 16820 Edward Böcking, 11, Southampton Buildings, London.—An improved method or process of preparing moist purple ore (fine iron ore) for smelting.—June 4.
- 16837 Osasian Carol Davis, 4, South Street, Finsbury, London.—Improvements in and relating to fountain pens.—June 4.
- 16845 John Megson Porter and John Blakey, 34, Ebor Place, Hyde Park, Leeds.—An improved water feed for steam boilers.—June 5.
- 16943 Luigi de Maio, 323, High Holborn, London.—Improvements in or relating to rotary engines.—June 5.
- 16954 George Archer, 48, Ashworth Road, Ilkeston.—An apparatus for preventing the fall of a cage in a pit shaft, in any case where the winding rope breaks.—June 6.
- 16959 James Faton Auld, 9, Westland Row, Dublin.—A new or improved direct acting rotary steam engine.—June 6.
- 16962 Alfred Hugh Tyler and another, 5, Crown Court, Cheapside, London.—An improved form of rotary pump, applicable also as a motor or meter.—June 6.
- 16972 John Thomas Cussons, Keldgate, Beverley.—Improvements in or relating to engine pipes.—June 6.
- 16979 Thomas Hosking, 26, Castle Street, Liverpool.—Improvements in metallic packing for piston rods, and the like.—June 6.
- 16988 James Root, Manor Road, Teddington, Middlesex.—Improvements in oil engines.—June 6.
- 16990 David Purves and another, 55, Chancery Lane, London.—Improvements in tubulous boilers.—June 6.
- 17046 Caleb Barker Shadwell, Thetford, Norfolk.—Improvements in starting apparatus for gas and oil engines.—June 7.
- 17088 William Wilson Hulce, 46, Lincoln's Inn Fields, London.—Improvements in lathes and other machinery for cutting metals.—June 7.
- 17115 James Thomas, 2, John Street, Bristol.—Improved duplex pressure gauges.—June 8.
- 17150 Philip Francis Oddie, 55, Chancery Lane, London.—Improvements in duplex pumping apparatus.—June 8.

## SPECIFICATIONS PUBLISHED.

16927, Alexander, steam generators, 1893; 16992, Sampson, steam generators, 1893; 16746, Dürr, steam generators, 1893; 22,737, Walker and Leadbeater, dilute, 1893; 2245, Thompson, rotary engines, 1894.  
 The above specifications published may be had of Messrs. Rayner and Company 37, Chancery Lane, London, at 1d. each including postage.

## CONTRACTS OPEN:

**FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.**

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The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the address given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

## HOME CONTRACTS.

**Iron Fencing, June 26 (London, N.).**—For supplying and fixing 1140 feet run, more or less, of wrought-iron boundary fence, stays, large and small entrance gates, &c., for Bruce Castle Park, Tottenham, for the Tottenham Local Board. Plan can be seen, and particulars and forms of tender obtained, on application to Mr. P. E. Murphy, engineer to the Board, Coombe Croft House, 712, High Road, Tottenham, any day during office hours.

**Reservoir, June 30 (Wrexham).**—For the construction of a new storage reservoir at Fendinas, Bwngwyn, near Wrexham, to hold about 50,000,000 gallons, and covering an area of about 20 acres, for the Breunbo Water Company. Plans and specifications to be seen at the offices of Messrs. Darnley and Son, engineers, Wrexham.

**Boilers, July 2 (London, S.E.).**—For the manufacture, delivery and erection complete of two new Lancashire boilers and fittings at the Council's Central Works, Belvedere Road, Lambeth, S.E., for the London County Council. Bills of quantities, form of tender, and other particulars to be obtained at the Engineer's Department, County Hall, Spring Gardens, S.W.

**Coal, July 2 (Bath).**—For the supply and delivery at their gasworks of 10,000 tons of gas coal for the Corporation. Condition and forms of tender may be obtained on application to the manager at the gasworks. Sealed tenders addressed to the Town Clerk, and endorsed "Gas Coal," to be delivered at the office of Mr. Jos. Hanson Clark, town clerk, Bath, on July 2.

**Coal, July 2 (Belfast).**—For the supply of coal during one year from August 1, for the Belfast Harbour Commissioners. Tenders to be made on official forms provided for the purpose, which may be obtained on application at the Harbour Office, to be addressed to Mr. W. A. Currie, secretary, Harbour Office, Belfast, and sent in by July 2.

**Ironwork (London, E.C.).**—For underframes and body steel and iron work for carriages and wagons, for the Bengal-Nagpur Railway Company (Limited). Specifications and forms of tender can be obtained at the company's office, 132, Gresham House, Old Broad Street.

**Reservoirs (Tottenham).**—For the construction of a new reservoir and the enlargement of existing reservoirs at Stormal Hill Bleachworks, Tottenham, for Mr. R. K. Roberts. Drawings and specification to be seen and all further information obtained on application to Mr. T. Nuttall, civil engineer, 12, Market Street, Bury.

**Girders (Ryde).**—For the supply of a large quantity of lattice girders for the bridges connected with a light railway in Mexico. Drawings and particulars can be obtained from Mr. R. F. Anderson, A.M.I.C.E., The Esplanade, Ryde, I.W., on payment of 2s, which will be returned to all except the successful contractor.

## OUR INQUIRY COLUMN.

**TO CORRESPONDENTS.**

Correspondents will please take note that all communications will in future be answered in this column and not through the medium of the post. All questions and replies should be accompanied by the name and address of the writer.

## REPLIES.

**SCRUTATOR.**—(1.) We think so. The shares will probably improve in value when additional stamps are erected. (2.) Perhaps you could not do better, considering the news received this week of the strike of the south reef.

**W.W.**—Sell out as quickly as possible.

**G.N.**—We do not regard them as at all promising.

**INQUIRER.**—We have not heard of the existence of any committee of inquiry.

**R.S.**—You had better await further news from the mine.

**GEORGE.**—Certainly. The shares appear to be a good purchase. They are likely to keep on the rise for some time at least.

**A.X.**—There is no market for the shares, and you would not be likely to find a buyer.

**SHAREHOLDER.**—We fear that but little effort is being made to make the company successful.

**H.M.**—We would rather not interfere with your private judgment.

**S.R.**—Yes; such companies are bound to furnish the list.

**ANXIOUS.**—The report has just been published. Have you not received one? We think it is decidedly encouraging.

**VERITY.**—There is a fair prospect of an early improvement.

**J.R.**—The mine is undoubtedly good, but rather heavily capitalised.

**FOREIGN COMPETITION** is often declared to be the cause of much of the suffering in this country, and we are told that the number of foreigners in England made it very difficult for the Englishman to get a living. However this may be, it is certainly true that the presence of foreign matter in the blood endangers the health of the whole system. To purify the blood and to correct disorders of the liver and stomach, the only certain, safe, and agreeable medicine is Holloway's Pills. If you suffer from gout, rheumatism, or lumbago, scalds, burns, or similar evils, you must use with the least possible delay Holloway's Ointment. For over half-a-century these famous remedies have been the faithful friend of man.



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Centrifugal Roller Quartz Mill  
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Mexico, and Australasia.

Telegraphic Address:

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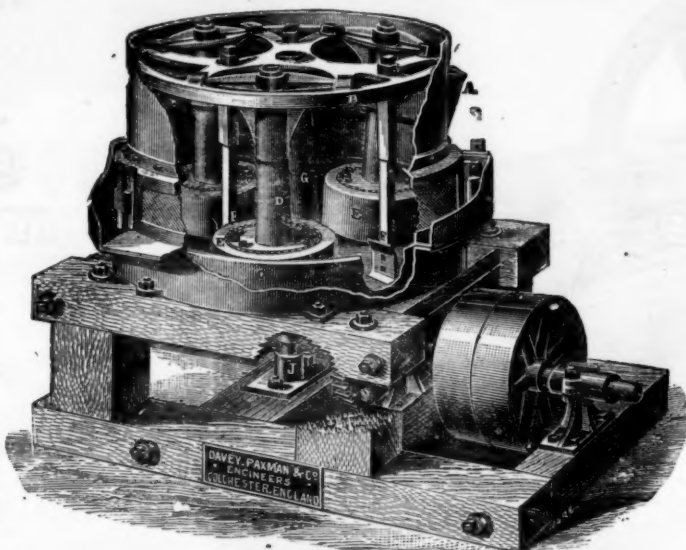
Huntington's Patent Centrifugal Roller Quartz  
Mill for fine pulverizing in Concentration.

LONDON OFFICE

78 [late 139], QUEEN VICTORIA STREET.

D. P. & Co., after a great number of  
careful experiments have so improved  
and perfected the Huntington Mill that  
it must now be classed among the  
greatest inventions of the age. The ex-  
cellence of its work is undoubted, and  
its superiority over Stamp Mills will  
soon cause a revolution in its favour  
for Quartz Crushing. Its first cost,  
and cost for freight and transit is much  
less than for stamps, it absorbs about  
half the power for the same output, and  
is continually crushing. It can be fixed  
and started in 12 hours, requiring for  
foundations only two pieces of timber  
12 in. by 12 in. by 14 feet long, is more  
reliable than stamps, and has perfect  
delivery. It is used to its greatest  
advantage on gold quartz, for, because  
of its excellent amalgamating proper-  
ties, it catches about 75 per cent. of the  
gold put into it.

Full Particulars on Application to  
**DAVEY, PAXMAN & Co.,**  
Colchester.



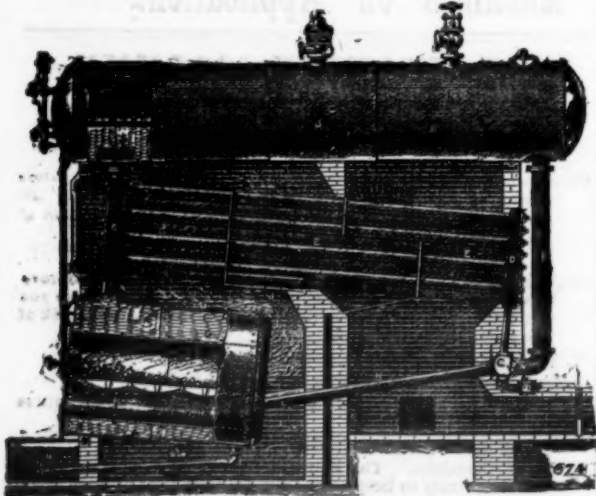
## MECHANICAL ENGINEERING: MACHINERY, MINING and RAILWAY PLANT, &c.

Illustrated Descriptions of New and Standard Mechanical  
Appliances, Accessories and Processes, adapted to Mining,  
Metallurgical, Railway, Engineering and other Industrial  
Purposes.

### NEW SAFETY WATER TUBE BOILERS.

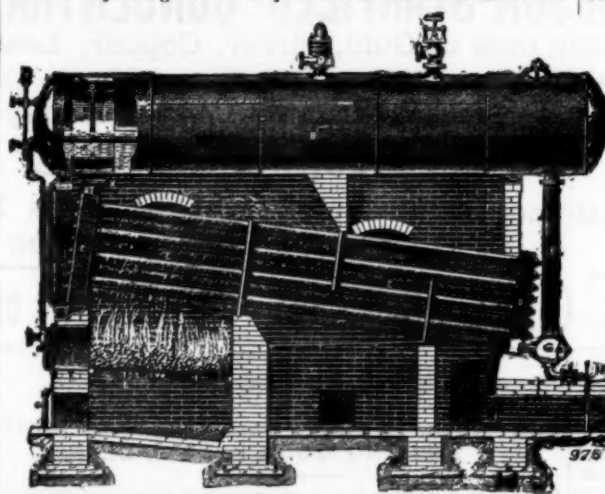
THE most recent addition to the ever-growing works of  
Messrs. R. Hornsby and Sons (Limited), at Grantham, is  
a department for the manufacture of some improved types  
of water-tube steam boilers, brought more into conformity with  
modern requirements by higher advantages for the safe, efficient,  
rapid, and economical production of steam. There are at present  
manufactured two kinds, known respectively as types A and B,  
according as the furnace is water-lined or brick-lined. The former  
is held to be the best in the market for high-class bitu-  
minous and smoky coals, as a complete combustion of the fuel  
is obtained, while at the same time there is an almost entire  
prevention of smoke. Fuels necessitating a large grate area are  
best served by the brick-lined furnace, which possesses, in addition  
to its other advantages, the special characteristic of portability.  
Arrived at its destination, it is easily constructed and  
repairable.

In regard to the type A boiler, of which we give an illustration,  
the water-cased furnace A is made out of single plates of mild  
steel planed on the edge, the ends being flanged by hydraulic  
machinery, and it is claimed that this construction gives it



immense strength. B is the steam and water drum, and C and  
D are patent enlarged headers in which there are hand holes  
opposite the ends of each tube for cleaning purposes, all easily  
accessible at front and back, and being covered by internal safety  
hand hole doors, faced to form metal to metal joints, and secured  
by bolts and external caps. The steam pressure tends to keep  
the joints tight, and the connections of the headers having large  
areas an improved circulation is secured. Through the absence  
of smoke resulting from the perfect combustion in the combus-  
tion chamber, the surfaces of the series or group of tubes E are  
said to keep practically clean and form most efficient heating  
surfaces on which the clear hot gases impinge and are readily  
taken up, the water casing efficiently utilising the radiated heat  
of the furnace. The wrought iron or steel tube F conveys the  
water in circulation from the steam drum to the water-cased  
furnace A and the nest of tubes E. The connecting block G is  
made with hand holes, so that the connecting tubes are easily  
accessible. H and I are the connecting circulating tubes. The  
fire-bricks and tiles in the combustion chamber J become  
incandescent, and the carburized hydrogen, or hot gases, from  
the coal impinging on this incandescent surface carry forward

a more complete combustion, producing, it is stated, clear hot  
gases before coming in contact with the cooling surfaces of the  
tubes. The arches of these combustion chambers are so formed  
as to be free to contract or expand with the varying heat to  
which they are subjected, and on this account, it is added, they  
last longer and are very easily replaced when necessary. The  
medium of circulation K between the furnace tubes, the steam  
separator O, and the steam drum B, is claimed to form a perfect  
and continuous means of circulation, another advantage of this  
system of connection being that when the calcium carbonate  
(limestone) held in solution in the water becomes heated it  
solidifies and is carried with other sediments to the lowest and  
coldest point—i.e., to the bottom of the water-cased furnace,  
does not form scale, and is easily blown out through the blow-  
off or mud tap N, which greatly prevents incrustation forming  
in the steam generating tubes. M is the feed valve. The steam  
separator O is a recent important improvement, and, we are  
told, remedies one of the chief defects of previous water tube  
boilers. By the great velocity at which the steam and water



flow into the drum in the ordinary water tube boiler, a very  
large amount of water is, we understand, carried with the steam,  
but by the arrangement (O), shown in our illustration, the  
steam and water are carried over the water level and passed  
through slots and divided into a large number of small streams,  
thus permitting free separation of steam from water and securing  
absolutely dry steam.

Each type of boiler is supplied with an improved method of  
steam separation, and has the additional advantage of a better  
means of separating the sediment from water. Both boilers  
have their tubes made of best lap-welded wrought iron, while  
the other parts of the boiler work are of mild steel, and built  
on a plan to admit of the widest freedom for expansion and con-  
traction.

For the purposes of general steam production and use, and  
especially for iron and steel works, these boilers are especially recom-  
mended. In utilising waste gases from heating and puddling  
furnaces, the boilers are easily erected in frame work, and by  
design and finish insure an element of safety unconnected with  
other types. Sugar plantations and works are mentioned as  
being especially suited by the boiler, as cane refuse can be utilised  
as fuel, dry or wet.

The A type or boiler R is said to have a great advantage over the  
ordinary kinds of sectional water-tube boilers in an increased  
efficiency and economy. Perpetual renewals of brick furnaces are  
avoided, and there are increased facilities for the application of  
mechanical stokers, and for banking up the fires. Any formation  
of incrustation upon the heating furnaces is obviated by the  
free circulation of the water in one direction through the boiler.  
A uniform temperature is maintained, while the boilers are so  
constructed as to effect an equal distribution of the strain upon the  
parts.

Our second illustration is of the type B boiler with a brick-  
lined furnace. A division of the water in the circulating tubes  
is effected, and the small volumes being quickly raised to a high  
temperature, pass through the headers into the steam and water  
drum, where the steam is liberated.

## MINING IN CORNWALL

AND DEVON:  
NOTES ON WESTERN MINING, EDITORIAL  
AND OTHERWISE.

AS we anticipated last week, the choke in the engine shaft at  
Dolcoath, which has rendered the main pumping shaft of the  
mine idle for nearly ten weeks, has been practically cleared,  
and probably before this appears the engine will have been set to  
work. All arrangements had been made in the early part of the  
week for the fitting of the new rods in place  
of those which had been crushed by the fall of  
ground. Captain Josiah Thomas and the shareholders generally  
must feel the greatest satisfaction that a piece of work, which has  
been tedious and dangerous, has at last been accomplished. One  
thing is certain—the work could not have been carried out in any  
other mine in the county more expeditiously than at Dolcoath.

The only fear now is as to the condition of the bottom levels,  
but those who know the mine best do not anticipate any serious  
complications. The absence of any general uneasiness on this  
score is evidenced by the fact that on the report that the  
shaft had been nearly cleared shares were rather firmer. There  
have been rumours, which at present cannot be substantiated,  
to the effect that a certain amount of mischief has been done at  
the 400 by the presence of water, but seeing that the water is  
now above the 400, this must be merely conjecture. It is pos-  
sible that the story may have been circulated for market pur-  
poses.

It is a striking proof of the wonderful productiveness of the  
mine that even with their best and most profitable ground  
which Captain Josiah Thomas spoke of as the finest tin lode  
in the world unavailable they should have been able to keep  
up the returns to 40 tons a week, equivalent to 480 tons for the  
quarter. This has mostly come from the eastern part of the  
mine, and has been brought up through the new shaft. We  
doubt whether there has been any considerable saving in the  
cost of working, although the employment in some departments  
has been curtailed, because this will probably have been met  
by the extra costs in connection with the accident, and it can  
hardly be expected, with tin at its present price, that Dolcoath  
will be able to make much of a profit on a return of 480 tons.  
To many of the shareholders the news that the choke has  
been cleared will be only one degree less welcome than a  
dividend.

We hear of several improvements in the mines. Tincroft is look-  
ing remarkably well, and is outstripping her neighbour Carn  
Brea. They have been selling more tin, and in all probability there  
will appear as a credit at the next account a fairly substantial amount  
received on the sale of arsenic and copper ores. It is a curious  
commentary on the relative position of the two mines not very long  
ago, that Tincroft shares are now worth about 11½, while Carn Brea  
are quoted at 7½.

At Wheal Basset the lode has been cut in the No. 2 winze, just  
where it was anticipated. It is not of any great value, but the in-  
dications are said to be favourable. With the return of Captain  
Frank Oats, the largest shareholder, several matters in con-  
nection with the development of the mine, which have  
been allowed to remain in abeyance, will be settled,  
though we do not anticipate the shareholders will decide on the  
immediate sinking of the long talked of new shaft. One thing  
which will probably be settled is the water difficulty between Wheal  
Basset and South Frances. A joint meeting of the committees of  
the two mines is to be held, at which it is hoped that the question  
at issue will be amicably arranged. Wheal Agar is looking better.  
The lode in the shaft is said to have shown signs of improvement.  
Shares, however, are very flat, and would-be sellers find a great  
difficulty in getting rid of them.

GRANT OF MINING LEASES IN INDIA.—It is understood that  
the Secretary of State has recently sanctioned, subject to a few  
slight alterations, the rules proposed by the Government of India  
for the grant of exploring and prospecting licenses and of mining  
leases. These rules, which will, it is hoped, be issued shortly now  
that they have been for some time under consideration, permit  
local Governments to grant licenses and leases subject to certain  
limits. The limits fixed will generally meet the requirements of  
concessionaires; but when they do not, and the local Government  
considers that more favourable terms should be granted, the applica-  
tions will have to be forwarded to the Secretary of State for sanction.



# THE MINERAL DEVELOPMENT OF NOVA SCOTIA.

By E. GILPIN, Jun. A.M., F.G.S., F.R.S.C.

## The Coal Fields.

THE Sydney coal field is situated on the Atlantic, on the eastern shore of Cape Breton, and extends about 32 miles along the shore and about 8 miles inland. This area forms the western rim of a great basin extending out under the Atlantic. Fortunately nearly all the seams can be followed in their subaqueous extension. It has been estimated that, within 3 miles of the shore, to a depth of 4000 feet, adopting the calculations of the Royal Commission on the duration of Great Britain's coal supply, there are available 2,000,000,000 tons of submarine coal.

The coal field presents itself as the outcrop of three subordinate basins, the upper seams in which enter the land, swing round and again enter the sea to re-appear on the land.

The following section taken in the centre of the district will show the relative positions of the seams, and the thickness of the intervening strata:—

Seams.	Feet.	Inches.	Strata and Coal.
Seam A .. .. .	3	0	
Carr .. .. .	306	0	
Barasois .. .. .	6	5	
Victoria .. .. .	190	0	
Seam D .. .. .	12	1	
North head .. .. .	379	0	
Lingan main .. .. .	8	0	
Seam G .. .. .	235	0	
Seam H .. .. .	3	0	
	78	0	
	4	0	
	75	0	
	8	0	
	95	0	
	4	6	
	340	0	
	4	9	

These seams, except at two limited points, lie at low angles from 5° to 8°, and are almost entirely free from faults.

These seams are those included by the Geological Survey as in the productive measures; there are, however, numerous workable seams lying below them. The lowest near the town of Sydney having nearly 4 feet of coal, and distant about 8 miles from the outcrop of the lowest seam given in the above section. The fact that the fossils of the horizon yielding the seam near Sydney are referred by Sir William Dawson to the productive, and not to the millstone grit, gives reasonable grounds for belief that future explorations will give the Sydney coal field an area several times larger than that now assigned to it.

The coals of this district are bituminous and coking. They yield from 9000 to 11,000 cubic feet of from 14.75 to 16 candle power gas. Tests made of them in beehive ovens show that they make in their crude state a good coke, and that with preparation they would give a coke at least equal to any made on this side of the Atlantic. They are extensively used for domestic purposes, and for locomotive and marine steam raising. The following average of analyses will serve to show their character:—

Moisture .. .. .	75
Volatile combustible matter .. .. .	37.26
Fixed carbon .. .. .	58.74
Ash .. .. .	3.25
	100.00

There are large tracts of coal bearing land at River Inhabitants, Port Hood, Mabou, Broad Cove, and Margaree in the island of Cape Breton, but hitherto they have received little attention.

In Nova Scotia proper coal-seams are known at Pomquet, Hollowell, Stewiacke, Debert, and other points, but developments have been effected only in the Springhill and Pictou districts. In the latter place there are two companies operating, the Intercolonial and the Acadia. The output last year of the former being 208,098 tons, and of the latter 244,769 tons. The seams in the Pictou district are presented as a long narrow synclinal about 12 miles in length and four miles in greatest width, having dips up to 40°.

The following section shows the relative position of the principal seams:—

	Feet.	Inches.	Strata.	Feet.	Inches.
Main seam .. .. .	34	7	148	0	
Deep seam .. .. .	22	11	106	0	
Third seam .. .. .	5	7	113	0	
Purvis seam .. .. .	3	6	130	0	
Fleming seam .. .. .	3	3	4	3	
McGregor seam .. .. .	12	0	211	0	
Stellar seam .. .. .	5	0	15	0	
Seam A .. .. .	11	0	187	6	
Seam C .. .. .	10	0	—	—	

The following average of analyses from the paper already referred to will show the general composition of the seams of this district:—

Moisture .. .. .	1.19
Volatile combustible matter .. .. .	29.10
Fixed carbon .. .. .	60.63
Ash .. .. .	9.34

The coals are used largely for steam purposes, iron working, and an excellent coke is furnished by several of them.

The seams are entered by slopes following their inclinations; levels are driven at intervals of 400 to 600 feet, and bord-and-pillar work carried on to the rise. Where the pitch of the seam permits, a gate road is driven up on the full pitch of the seam, and bords turned right and left. By means of a platform and a loaded box running on wheels and connected by a rope passing round a drum provided with a brake, the platform and loaded coal tub overpowers the balance box and carries the loaded tub down to the level. The empty tub and platform is raised in turn by the weighted box. This permits of rapid handling of boxes at angles too great to allow horse roads. At heavier angles the coal is run to the levels in shoots. Longwall work is adopted in the thinner seams, the shoots being opened out as the face advances inward, and lengthened as it advances upwards.

In the Pictou district careful attention is necessarily directed to the ventilation as the seams give off much gas, and the "back balance" system of working requires ample air supplies. Marsaut and Mueseler lamps are found most satisfactory, and the use of gunpowder is greatly restricted. Roburite and a dynamite magnesian (local) explosive are found satisfactory substitutes.

In Cumberland county the coal field is believed to cover an area of about 430 square miles. The coal measures outcrop on the shores of Cumberland basin, run eastward into the land for

about 18 miles, and outcrop again before they enter upon the return outcrop, running westwardly to the sea-shore. The northern outcrop has been systematically worked on the shore at the Joggins Mines with a present annual output of about 80,000 tons, on a seam yielding about 6 feet of coal. The remainder of this side of the basin has not yet received much attention, but will, as the demand for coal increases, become more exploited. The principal operations in this district are at the apex of the basin; at Springhill, where the Cumberland Railway and Coal Company are engaged in mining, three valuable seams of coal.

The development of the coal resources of Nova Scotia began over a century ago, but it is only during the past 10 years that it has shown signs of a steady and satisfactory growth. The home market and that of the adjoining colonies have drawn their supplies from Nova Scotia at reasonable prices, coal selling, for instance, at Montreal, for \$2.68 per ton of run of mine coal. It is anticipated that the increased facilities now available for mining and transporting coal will enable the owners of provincial coal to gain a foothold in the New England markets, which now consume annually about 6,000,000 tons of soft coal. The increasing manufacture of steel and iron in the province is also an assistance. With these steadily growing outlets the future of coal mining in Nova Scotia is at present most encouraging.

## Gold Mines.

As already noted, the gold fields occupy the Atlantic Coast of the province. The age of the strata, in a paper read by me before the American Institute of Mining Engineers, was referred to as equivalent to the lower Cambrian or Longmynd series of Europe. The numerous bosses and dykes of granite, which intersect the gold fields can be determined as of an age not earlier than the lower carboniferous. They need not be further mentioned here, as they seem to exert no influence on the auriferous values of the rocks they intersect.

The auriferous horizon comprises two divisions, the upper containing dark pyritous slates, with beds of quartzite, and carrying veins of quartz usually small and irregular, but often showing gold. The lower division presents alternations of compact quartzites, frequently felspathic, but rarely calcareous, with argillaceous slates, sometimes magnesian or chloritic, and includes numerous quartz veins. The thickness of the lower group has been estimated at about 10,000 feet, that of the upper at over 4000 feet.

Estimates have placed the area of these rocks, after deducting the granitic masses, at about 3000 square miles. This great mass of sediments has been folded in undulations having an east and west course. These foldings have in some cases been carried far enough to cause overturn dips. This force, acting at right angles to the coast line, has been followed by transverse foldings. At points where the overlying pyritous slates have been denuded the crests of these anticlinals present the lower or quartzite series, usually with vertical or heavy dips.

The auriferous quartz bodies are presented following the course of the beds of the lower series as they run in their divergent dips, and as they sometimes sweep round the ends of the anticlinals. The quartz bodies, at first sight, present the appearance of beds contemporaneous with the strata surrounding them. A closer study, however, would classify them as veins; thus they are found to pinch out, and the fracture to continue, to pass from one stratum to another, to show banded structure, to throw out feeders, to hold inclusions of slate, horses, &c.

Their formation may, perhaps, be most readily explained by supposing that the strata, consolidated and metamorphosed, opened along lines of least resistance during the process of folding, and that these openings, more or less affected by water, were filled with quartz, &c. There are abundant traces of subsequent faulting, &c., with and without vein filling. In some cases these true veins are auriferous, but the bulk of the gold has come from the strata veins.

The thickness of the veins at present worked varies from 2 inches to 12 feet. The usual width is from 5 to 10 inches. The horizontal extension varies from a few hundred feet to over 2 miles, and workings have been carried to a vertical depth of nearly 600 feet. The minerals usually associated with the gold are sulphides and arsenides of iron, galena, blende, copper pyrites, oxide of iron, copper glance, molybdenite, &c., not, however, in quantities of economic importance.

The gold is presented in the veins in pay streaks. Their forms and inclinations are irregular, their horizontal dimensions varying from 50 to 300 feet, and their depth varying up to 500 feet. In addition there are beds of slates carrying numerous irregular veinlets of quartz which are crushed for a yield of from 3 to 6 dwts. per ton. It will probably be found in the future that these low grade deposits will prove more certainly profitable than the thinner if richer quartz veins. Hitherto alluvial mining has received little attention in Nova Scotia, although there are many places that should repay search. In many of the mining districts it has proved profitable to run the surface ground through a mill.

The veins are almost invariably opened by shafts sunk on the dip of the vein. Shafts are sunk from 80 to 200 feet apart, and at a depth of say 50 feet stopes are commenced directly from the shaft, which is protected by blocks of the vein or closely packed scaffolds. The work is done by underhand stoping, usually with two men to a drill, dynamite or powder being the explosive according to the hardness of the rock. The ore is thrown to the level and barrowed to the nearest shaft. The hoisting is usually by means of friction gear from an engine placed at a central point. It is customary to make the "cutting in" in the hanging wall, and to leave the vein standing until it is bared to give stone enough for a crushing. This prevents waste of the vein matter, and it is less exposed to the miners.

Mining in these rocks usually presents few difficulties. The strata are hard and firm, and readily handled by timber, &c. These properties naturally ensure little leakage of water, and the pumping power is usually small, except where the location of the mine permits the ingress of surface water. The quartz is broken to suitable size by hand or by a rock breaker, and fed, often automatically, to the stamps. The mills here are usually small, two or three batteries of five stamps each. The stamps weigh from 600 to 800 lbs., and run at from 30 to 50 drops a minute. A more rapid speed has been successfully tried at some of the mills. The gold is amalgamated in the batteries without plates. The tailings are passed over plates, and in some cases vanners are employed to take out the sulphides.

The output of the mines, according to the returns received from the mills, has varied between 15,000 and 26,000 ounces a year, employing about 400 miners.

## Iron Ores.

The early attempts at iron smelting in Nova Scotia proved unsuccessful, but about the year 1870 two blast furnaces were built at Londonderry, in Colchester county, and have been running since on forge and foundry pig. About a year ago the New Glasgow Iron and Coal Company built a furnace at Ferrona, in Pictou county, and are turning out an excellent Bessemer pig used at the local steel works. A charcoal furnace plant has also been erected in Pictou county, and will shortly be in operation.

The output of iron ore for the year 1893, was 102,000 tons.

The ores of the province are magnetites and red hematites in laurentian gneisses, limestones, &c.; bedded magnetites and red

hematites and veins of brown hematite and specular in Devonian and silurian strata; spathic, blackband, red and brown hematite in carboniferous measures. Contact deposits of red and brown hematite are frequently met at the junction of the carboniferous with all the older measures.

In Cape Breton there are numerous known outcrops of iron ore, but as yet no work has been done on them beyond a few trenches. At Whyhogomah, on the Bras d'Or Lake, explorations have exposed nine beds of red hematite and magnetite connected with Laurentian limestones. These deposits vary in thickness from 3 to 9 feet. A bed of red hematite associated with similar strata, and from 4 to 14 feet thick, has been traced for several miles near East Bay. Specular ores have been found near St. Peter's. Among other localities iron ores occur at Loch Lomond, Ainslie, Cheticamp, Big Pond, and Loran, but little is known about them. Many of the Cape Breton deposits are good enough for Bessemer purposes, and they are all within easy distance of shipping. No doubt before long attempts will be made to smelt these ores with the coals of the Sydney coal field, which yield an admirable coke.

In Guysboro' county several large deposits of specular ore, reported to be fit for steel making, have been partially tested. The test cargoes were satisfactory, but the expenses of building 12 miles of railway to the harbour of Guysboro' caused the abandonment of the undertaking.

At Arisaig, in Antigonish county, about 12 deposits of red hematite are found in pre-silurian measures. The ores are in some cases bedded, and in other instances appear to be connected with dioritic dykes. The deposits are from 2 to 24 feet in thickness. The quality is good, and a few trial cargoes taken to the Ferrona furnace in Pictou county proved to be available with local brown hematites for steel for the local works.

The next noticeable district is on the East River of Pictou county close to the Pictou coal field. Here Devonian strata hold veins of brown hematite and specular ore with ankerite &c., while silurian measures hold bedded ores of red hematite comparable with the Clinton ores of the United States. At the junction of these horizons with the carboniferous and in the latter are red and brown hematites, in places magnesian, and spathose and carbonate ores. The extent of these ores is very great, and has not yet been clearly defined. The New Glasgow Iron, Coal, and Railway Company have built a railway for 13 miles up the East River from the Intercolonial Railway at Hopewell, and it passes close to several large deposits of brown hematite and limestone which they are mining and smelting at their furnace near the Intercolonial Railway. The brown hematite is also smelted at a charcoal furnace at Bridgeville on the branch railway. The furnace of the New Glasgow Company yields about 85 tons a day of a good grade of Bessemer pig, which is used by the local steel works.

As yet mining in Pictou county has been confined to the contact deposits. The brown hematite, accompanied by clay, and at some points by ores of manganese, presents itself in irregular beds and veins between the carboniferous and older strata. The ores seem never to be wanting, and are sometimes present in several bodies, the thickness of which varies from 3 to 25 feet. The deposits appear persistent in depth, and have so far been proved to in depth of 600 feet. On Sutherland River there are several beds of spathic ore up to 12 feet in thickness. Hematites, specular, bog ores, &c., are found at various other points in the county.

In Colchester county there is an extensive development of brown hematite in a vein in Devonian strata associated with specular ore, ochre, ankerite, and other carbonates of lime, iron, and magnesia. Operations have been carried on here for a number of years by the Londonderry Iron Company. There are two furnaces of about 90 tons capacity each.

The furnace charges are a mixture of ankerite and spathic ores with local brown hematite and a compact red hematite from Annapolis county. The product is a foundry iron of good quality, largely used in Montreal.

Passing to Nictaux, in Annapolis county, there is a large iron ore field. Its limits have not yet been ascertained with precision, but it appears to be about 5 by 8 miles. The strata are considered to be of Devonian age, and have been in places largely acted upon by granitic masses; hence the ores which are bedded are more or less magnetic. The Torbrook Iron Ore Company are mining about 35,000 tons a year from a 6 feet bed situate near the eastern end of the district. Some explorations have been made in the remainder of the district, showing beds of from 3 to 12 feet in thickness. The amount of ore here must be very large. Some of the ores of this district are phosphoric and silicious, but a large number are of good quality. A similar but smaller area is found about 40 miles westward at Clements Port.

In addition to these deposits there are a great many other points where ores of good quality and of workable dimensions are known, viz., Pugwash, Grand Lake, Brookfield, Goschen, Selma, Clifton, &c.

TABLE SHOWING COMPOSITION OF IRON ORES.

Contents.	Whyhogomah.	East Bay.	East River.	East River.	East River.	Londonderry.	Nictaux.
Metallic iron ..	56.00	59.52	54.36	64.41	59.50	57.85	59.11
Silica ..	10.04	5.13	19.43	3.68	2.14	4.79	14.97
Sulphur ..	—	—	—	—	—	—	—
Phosphorus ..	—	—	—	—	—	—	—
Lime ..	—	—	—	—	—	—	—
Magnesia ..	2.49	—	—	—	—	—	—
Alumina ..	5.85	—	—	—	—	—	—
Water ..	1.29	—	—	—	—	—	—
Tartaric acid ..	—	—	—	—	—	—	—
Manganese ..	—	—	—	—	—	—	—

\* Red hematites.

† Brown hematites.

## PIG IRON STATISTICS, 1893.

	Pig iron made.	Ore charged.	Flux charged.	Fuel charged.
	Tons.	Tons.	Tons.	Tons.
Londonderry ..	23,474	56,390	13,500	34,840
Ferrona ..	22,500	45,856	12,890	30,846
Bridgeville ..	498†	953	124	68,220

\* Charcoal bus.

† Charcoal pig.

## Gypsum.

In the carboniferous marine limestones of Nova Scotia gypsum forms one of the most prominent natural features. It outcrops at many places in the northern and eastern parts of Nova Scotia and in the Island of Cape Breton. The mineral occurs as hard and soft gypsum in every variety of form and purity. Owing to facilities for shipment, the greatest development of gypsum mining has been effected in the vicinity of Windsor, Hants county. The annual export from this district is about 150,000 tons, valued at about \$1 a ton. The mineral is taken from open quarries, trammed a few yards to the wharves, and shipped to the United States, where it is ground and largely used for agricultural purposes, and a small amount applied to builders' use. Numerous deposits are worked on a small scale in other parts of the province, for export to Montreal, for a basis for fertilisers, and for

\* From a Paper contributed to the Federal Institution of Mining Engineers.



building purposes. The total annual production varies from 145,000 to 170,000 tons. The gypsum is accompanied by crystals of salt and saline springs, salts of magnesia, free sulphur, borates, &c., but these minerals have not yet received any attention.

Some years ago an antimony ore mine was opened and worked at Rawdon, in Hants county. After several years the low price obtainable for the product and legal troubles led to the closing of the mine. The ore was of good quality and in places decidedly auriferous. From examinations made by the writer there would appear to be good grounds for expecting workable deposits of this ore over a considerable tract.

Barytes is found at a number of places, and has been worked for an annual yield of a few hundred tons, principally for local paint works. Among the best known localities may be mentioned Five Islands, River John, Gays River, Stewiacke, and Loch Lomond. Carbonate of strontium is reported from several points.

Limestone is very abundant. In the carboniferous strata it is usually compact, often fossiliferous, and laminated. It is quarried for lime building purposes, and for fluxes for the iron furnaces. Considerable amounts are exported to be burned in Prince Edward Island, which is destitute of this mineral. The limestone of the laurentian series is usually metamorphosed into marble. As yet the stone has not been used to any extent for structural purposes, although often very beautiful. In the event of the removal of the duties on marble entering the United States a good market would be opened there. These limestones are sometimes magnesian, and have been used for furnace lining; the purer beds have been extensively used for lime.

#### Manganese.

The ores of this metal most frequently met are pyrolusite, manganite, and wad. They are very frequently observed, and have been worked at several localities. Tonny Cape, Hants county, presents pyrolusite as pockets and veins in limestone said to be of lower carboniferous age. A small annual shipment has been maintained for a number of years. The ore is very pure, and is, I believe, used by glass makers in the United States. Similar ores have been worked on a limited scale at Loch Lomond, Cape Breton county, where one deposit apparently forms a bed, and the other occurs in sheets and nodules in a soft sandstone. Near Truro it is presented under similar conditions. Manganite has not, I believe, yet been found in workable quantity, nor has any attention been paid to the wad ores. As the indications of manganese are very widespread in the province it is confidently anticipated that large deposits will be found.

#### Lead.

Galena occurs at many places in connection with the carboniferous limestones disseminated or segregated in small veins. In the Stewiacke Valley, at Pembroke and Smithfield, however, the lead bodies are large and important. The low price of lead has discouraged all attempts to open these mines, but it is anticipated that the construction of a railway projected across the district they occur in will allow of the starting of works to supply the home market, which is a very large one, and principally dependent on English sources. As a rule, the silver percentages of the Nova Scotia ores are not high, the highest I have seen being about 100 ounces to the ton from Smithfield.

#### Copper.

The copper ores of Nova Scotia have hitherto received little attention, beyond attempts by local parties to open the more promising prospects.

The upper carboniferous measures, extending through Pictou, Colchester, and Cumberland counties, show at numerous points sandstones containing copper ore, frequently of high grade, but hitherto the deposits have proved too irregular for systematic mining. In the county of Antigonish, in Devonian strata associated with dioritic dykes, some copper pyrites deposits have been developed enough to show good promise. The distance of the ores from shipping, and the price of copper has, however, discouraged further work.

In the island of Cape Breton the traces of copper are widespread, and promise some day that Cape Breton will prove, like its neighbour Newfoundland, the seat of an important copper mining industry. The felsites, &c., of laurentian age seem to be the principal copper containing rocks. At Coxheath, near Sydney, the Eastern Development Company, of Boston, are gradually developing a property which promises to become an important copper producer. This locality being close to iron ore, limestone, and coal, and on tide water, is unusually well situated to form the site of an important centre for smelting the copper ore, not only of Cape Breton, but of the Gulf of St. Lawrence, Newfoundland, &c.

The commencement of copper smelting at this point will undoubtedly direct the attention of prospectors to the numerous signs of copper ore in Cape Breton, and the supply of ore in large amounts can be safely calculated on.

The brief reference I have given above covers the minerals of Nova Scotia, which have hitherto received any attention. There are in addition ores of molybdenum, zinc, nickel and cobalt, pyrites, plumbago, asbestos, &c., but they are known almost entirely from samples, and no attempt has been made to test any of the deposits.

Building stone, ochres, infusorial earth, clays, &c., abound, and are used to a small extent for local requirements. The building stones embrace grey and red granites, syenites, freestone, marbles, &c., of excellent quality, and usually in the vicinity of shipping.

The Government of the province retains gold, silver, iron, coal, lead, copper, tin, and precious stones, and allows the other minerals to pass in fee in the Crown land grants. Leases are given for periods of 40 to 80 years, on the usual conditions, subject to a royalty of 2 per cent. in the case of gold and silver, of from 10 to 12½ cents per long ton on coal sold, and of 5 cents per long ton of iron ore sold or smelted. A special department of the Government is charged with the care of the leases, &c., and a special registration is established free of cost.

From these brief remarks it will be seen that a promising development has been made in coal, iron, and gold, enough to show the extent and value of these three resources. All other minerals appear to have been hitherto practically ignored. This may be due to the absence of men accustomed to seek and utilise them, as well as to the lack of interest taken by the inhabitants of the province, who devote their attention more specially to lumbering, farming, and fishing. The widespread indications of mineral wealth warrant the hope that their appropriate development will take place at an early date.

**A SOAP MINE.**—One of the most curious exhibits at the World's Fair was a box of mottled Castile soap, a natural product of the soil of Nevada. The exhibit was taken from a natural mine. The mine is on the line of the Central Pacific Railroad, and it is claimed that it is the only mine of the sort known. This soap is one of the things about which Nevada people like to talk. One of them said recently, "We have enough natural soap to wash all the soiled linen of our own State. We could run a national laundry if it became necessary. A man in Nevada has no occasion to go dirty. The soap bathes with ease, and the children within its vicinity play with soap bubbles instead of dolls. The soap in this wonderful mine is imbedded there as compactly as blue clay."—*People*.

## MEETINGS OF MINING COMPANIES.

### AUSTRALIAN BROKEN HILL CONSOLS.

Favourable report from the property.—Discoveries daily expected.

THE fifth ordinary general meeting of the Australian Broken Hill Consols (Limited) was held at Winchester House, on Tuesday, the chair being occupied by Mr. J. H. WARD.

The SECRETARY (Mr. L. J. Woodman) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, beyond what we have told you in the report with regard to the past year there is very little that I have to say. I am, however, exceedingly glad to inform you that there is a very much more encouraging report of what has occurred since the termination of the period over which this report extends. In fact, as we say in that report, in the month of May we had most satisfactory information from our manager, a man upon whom we can absolutely rely, because he is a man of extreme carefulness and not at all prone to inflate our minds with any but absolutely correct and well-founded reports. It is a great satisfaction for me to be able to tell you that this improvement is continuing, and in confirmation of this I may mention that, while some time ago we told our manager not to incur the expense of cabling the output unless it exceeded the rate of 1000 ounces, we have now had telegrams continuously from the commencement of the find. How long the improvement will go on it is impossible to say, but I hope, as a large shareholder myself, and on behalf of the other shareholders, that things may turn out as satisfactory as they have done in the past. With regard to what has been done since the termination of 1893, I will roughly give you the figures.

The total amount of work done since December 31st amounts to 139 feet in sinking, rises, and winzes, 206 feet in drives, and 1533 square feet of stoping. Up to May all the ore that was got out of the property was realised in Australia, for the quantities were, comparatively speaking, small, and we did not think they warranted our going to the expense of having it shipped over here and realised in this country. Immediately, however, on the receipt of the good news to which I have recently referred, we telegraphed out to Mr. Smith that all the rich ore was to be promptly shipped to us over here, as was done in former times. We were guided in taking that step chiefly by examining our last account of sales realised in Australia, where we found that, owing to the glut of silver at Broken Hill and Adelaide, we could not at any smelting works out there get more than 2s. 1d. an ounce, while at the time of realisation silver here was standing at the price of 2s. 4½d. Now it is 2s. 4½d.

In dealing with any quantity of silver that is a very material difference, and if we continue to realise it, as in the past we have done, at the Wood Street Smelting Works, there will be material advantage gained to the shareholders. Shareholders will be glad to hear, what already we have dreamed into them, that the amalgamation with the East Broken Hill Company has gone through satisfactorily. More than 89 per cent. of the shareholders joined the scheme, and it has resulted very satisfactorily for both companies—for our company in that it gives us more working capital, and for the East Broken Hill Company in that it gives them a vastly extended field in which researches may be made and much greater chance of participating in any fortune that may come to the present company. Perhaps a few facts about your property would be instructive. We have never given you all the actual figures before, but I think it is fair shareholders should have them in their possession, so that they may be guided to some idea of the possibilities of the future. Altogether we have taken out of the mine in the gross £140,133 worth in pounds, shillings, and pence, although the gross proceeds of ore sold amounted to £112,451. The other assets bring the amount up to £140,133. Altogether we have spent in buildings, machinery, and plant £11,500, and on mine expenses alone £86,733. With other items we have spent altogether £86,733. You have had among you £49,000 odd, and we have still a balance in investments. That, gentlemen, as the secretary reminds me, was the state of the accounts up to the end of 1893. You will agree that this is not a bad account of our stewardship and the way in which your property has been conducted, and it shows also what the possibilities for the future may be. In one year alone your property produced \$89,635, and, as I stated to you upon a previous occasion, it merely wants a lucky strike of the pick to put us back again where we were in 1891. You have a vastly improved property, while the amount of underground work is tremendous, and at numerous points we may have a lucky find, so that instead of being somewhat depressed by a long drought we may come into a good harvest. Such I hope and think will be the case, and when it comes I shall only be too happy to congratulate the shareholders. Everything, so to speak, is in our favour. We have an excellent staff, and we have working capital to go on with, and my expectations will fall very far short of realisation if we do not get some good fortune with what is now being taken out of the No. 4, 280 level stopes. It will be remembered that Mr. Evans, one of our directors, went out last year. Upon his return he informed you all in a written circular of what he thought of the property. He has been good enough to promise to make a few remarks to you to-day, which I am sure you will listen to with great interest, and I may say that we, as a board, have obtained the greatest advantage from his visit to Australia. We have been put quite *au fait* with matters which we, perhaps, did not know clearly about before, and Mr. Evans, being artistically inclined, has made some very beautiful pictures of your property which will serve to show that it is no mere hole in the ground, but that we have extensive buildings, well-equipped machinery, and everything in apple-pie order, so that all we have to do now is to find the silver. That I hope we may do before very long. (Hear, hear.) As to what is going on at the property, you know quite as much as we do, because we always publish every bit of information the moment it is received. Before I conclude, in order to justify the perhaps rather sanguine tone I have taken as to the prospects of the mine, I will read you an extract from a letter from our manager (Mr. Smith), dated May 7:—"280 Level East, No. 4 Rise. For some time past we have been working along a small cross vein of pyrites, and on Friday afternoon a sudden change took place—the lode widened and revealed horn and native silver, with a little sulphide, iodide, and the ordinary chloride of silver. The discovery looked so promising that I decided to work at this point on Saturday afternoon and on Sunday, so that I should be able to form a better idea of its value before dispatching a cablegram to you. I thought it possible the ore might cut out in the unpleasant way so peculiar to the mine, and if so, the extra time might enable us to pick up the continuation of the run of ore. We have so far raised some very nice ore, but it is not yet classified, so I cannot estimate its value. The discovery is almost exactly the same as that which led up to the bonanza of 1891. The country rock and matrix of the lode are identical, and there is practically no difference in the ores as far as I have yet seen. I have just seen the ore broken out, and it appears to me to be making upwards; even if it should cut out, I feel sure that other deposits are close at hand; and if this vein of pyrites continues we should have little difficulty in finding them. It is very satisfactory to know that this vein is proving to be an 'indicator,' and I trust it may continue." Following that we have received some additional cablegrams:—May 7. "Struck horn silver 280 level east, prospecting drive, main shaft, block 96."—May 12. "280 level east, prospecting drive, main shaft, block 96: The vein is looking promising; 8 dwts., 2500 ounces of silver."—May 26. "15 dwts., 3200 ounces silver, the ore body is diminishing in size."—June 9. "1 ton 4 dwts., 1350 ounces of silver. Prospects are undoubtedly good." On consultation with my colleagues we came to the opinion that the last is a thoroughly good telegram. Those, gentlemen, are all the facts I have to put before you, and I beg to conclude by moving the adoption of the report and accounts.

Mr. EVANS, in seconding the motion, offered a few remarks describing his recent visit to Australia. The object of the journey was, he said, twofold—first, to reduce the expenditure so far as was practicable, consistent with the efficient working of the mine; and, secondly, to gather what the future prospects of the property might be. Little needed to be said as to the first point, because it would be seen from the report already sent to the shareholders that the expenditure had been decreased by something like £3000, or more than that, without any decrease being made in the number of miners employed upon the property. The second matter was, perhaps, of greater importance to the company. Probably the shareholders were familiar with the position of the mine. It was situated very close to the property of the Proprietary Company, and he might illustrate the relative positions of the two mines by saying that if that of the latter company were situated on Primrose Hill, the Australian Consols property would be in Regent's Park. Upon the morning of his arrival he walked across the property of the Proprietary Company, and was very much struck with the desert-like appearance of the surrounding country. The photographs upon the walls would give some idea of its nature. Experts, however, stated that whenever there were rich silver mines the country was always found to be of the same uninteresting character. Such was the case in Colombia, Utah, Chili, and Mexico. While he walked across the property, he had carefully observed his surroundings to see what he could gather without the assistance of the officials. He found very easily the outcrop near the No. 1 shaft. At the place where he had seen it, the outcrop was about 8 feet thick. He afterwards saw the officials and went down into the mine accompanied with Mr. Cleland. They went down the incline shaft and walked along the 280 feet levels east and west. He saw the excavations whence the rich deposits of 1890 and 1891 were taken. The quantity of silver raised from this place was altogether of the value of over £120,000. The place from which it was taken was, speaking comparatively, very small indeed. In conversation with Mr. Cleland he discovered that his anticipations as to the future were that the rich silver deposits would be found somewhere in the line of the 280 feet level. Whilst he was there indications were found both there and at the bottom of the incline from which very good news might be expected to arrive at any time. In regard to the lode he recollected that when he used to attend the meetings of the company as a shareholder he found there was some uncertainty as to whether a lode of any extent existed at all, or whether it was merely a thread-like seam running through the rock. As a matter of fact, the lode was of so marked a character that if any gentleman present, however small his mining knowledge, were to go down the mine, he would be able to distinguish it. The ordinary run of the lode was about 10 feet thick. What was thought to be the core of the lode was pointed out to him, and he thought it very rich indeed—the pipes of silver contained in the lode ran at a variable angle across the body of the lode. The present manager, Mr. Smith, stated that during the whole of his experience of the mine, he had found that to be invariably the case. As to the duration of the property, it was important for the shareholders to know that, although development works had been proceeding for some years, the portion of Block 96, shown in the two photographs, was by no means exhausted, and would in all probability be in existence for 50 years. The amount of ground in that one place alone was very large, and the lode was thick and permanent. As to the future prospects of the company, he consulted, in the first instance, Mr. Cleland and the company's present manager and mining manager, and they spoke in the most sanguine terms of the future. He, moreover, took an opportunity of asking the chief officials of the proprietary mine as to their views of what the future would probably be, and he gathered from them that nothing in the past history of the mine was at all inconsistent with the richest and most prolific development. Subsequently he had an opportunity of meeting some mining experts of Australia familiar with silver mines, and he gathered from what they said that the views of the company's own officials were very well grounded. Telegrams which had come recently had fully substantiated the news of the company's manager. He said that from the 280 level east to the 280 level west, and at the bottom of the incline, which had now extended 659 feet, they might at any moment get quite as large a return as in the very best years. Even with such a return they would have a sufficiency of ground left to last for many generations. As to the plant and machinery, which would be seen in the photographs, he could say without exaggeration that there was none superior in Ballarat.

Mr. SCOTT asked how long the directors would be able to keep the mine going without asking for any additional capital.

The CHAIRMAN believed the board would be able to carry on the mine for two years even if they were not to get another ounce of silver. (Cheers.) Continuing, the Chairman said he had omitted to read an assay of several samples of silver ore taken from the mine:—"From No. 4 rise, 280 level east: Horn silver, 70 per cent.; native silver, 89.5 per cent.; horn silver, &c. (crushed), 17,500 ounces; chloride, &c. (crushed in ironstone), 7180 ounces; smalls, rich, 2180 ounces; ironstone, smalls, 700 ounces. Failers from No. 4 level east of incline, 3689 ounces 15 dwts. 8 grains. Galena dressed by tributaries, 52 ounces, 68 per cent. lead.—G. Smith, assayer."

Mr. SPENCER proposed for the consideration of the directors whether it would not be advisable to cut down the capital of the company.

The CHAIRMAN promised to consider the matter.

The resolution for the adoption of the report and accounts was then put and carried unanimously.

Mr. ELLIS ELIAS, the retiring director, having been re-elected, and the auditors, Messrs. Price, Waterhouse and Co., having been re-appointed, the proceedings terminated with a hearty vote of thanks to the Chairman and directors.

### THE KANGARILLA SILVER MINES.

A sweeping change in the management.—Mr. Alefounder has his wish.

An extraordinary general meeting of the shareholders in the Kangarilla Silver Mines was held on Wednesday, at the Cannon-street Hotel, for the purpose of submitting for confirmation a resolution passed on May 22nd, authorising the issue of 12,000 priority shares of the nominal value of £1 each.—Mr. H. H. THOMPSON presided.

The SECRETARY (Mr. J. Robertson) read the notice convening the meeting.

The CHAIRMAN, in moving the confirmation of the resolution, explained that a meeting would subsequently be held for taking such steps as might be deemed desirable to ensure the future of the company. Since the last meeting the directors and the secretary had exerted themselves to the utmost to get the balance of priority shares taken up. Only a comparatively small number of shareholders had, however, come forward to subscribe. Consequently Mr. Davis, the latest addition to the board, had, with the sanction of his colleagues, entered into communication with Mr. Alefounder, who was still the largest shareholder, with the view of inducing him to take up his proportion, which he had hitherto declined to do. Ultimately Mr. Davis prevailed, but Mr. Alefounder stipulated as a condition that the present board should resign, and that he should have a seat upon the new board. That being so, the directors felt they had no other course than to place their resignation in the hands of the shareholders, which they would do at the subsequent meeting.

Mr. DAVIS seconded the adoption of the resolutions, describing the difficulty he had had in placing the priority shares. The course proposed was absolutely the only alternative to liquidation.

An appeal was made from the body of the hall that the Chairman should throw the meeting open for discussion concerning the whole position of the company, and a resolution was put and carried to that effect.

A desultory discussion then ensued, when the CHAIRMAN, in answer to questions, said that the present board had only given



their assent to the proposed arrangement as a last resort. It had been impossible to inform the whole body of debenture-holders of Mr. Alefounder's decision, which had only been communicated during the past few days.

Subsequently the resolution was put and carried unanimously.

An extraordinary general meeting was then held for the purpose of taking into consideration the future of the company, when each director successively placed his resignation in the hands of the meeting, which was accepted, and the vacancy thus created filled as each member of the old board retired.

Mr. H. O. Davis, Mr. Alefounder, Mr. Church, and Mr. Alvey were appointed to seats upon the new board.

The proceedings terminated with votes of thanks to the old directors and the secretary, whose zeal in the service of the company was warmly acknowledged by the CHAIRMAN.

## PHENIX UNITED MINES.

Call of 5s.

A 16-weekly meeting of the shareholders in these mines was held on Thursday in the account office of the Phoenix United.—Mr. W. POLKINGHORNE, purser, presided.

The CHAIRMAN submitted the accounts for the 16 weeks' working, which included the following items:—Expenditure: Labour costs, £5811; merchants' accounts, £1331; carriage, £458; coal and freights, £1483; rates and taxes, £25; sundries, £70; total, £8784.—Receipts: Tin sold, £5211; black tin sold last Tuesday, £780; and other small sums, leaving a debit balance of £2721. Including a previous adverse balance of £2247, the total deficiency amounted to £4969.

The CHAIRMAN stated that the arrears of calls amounted to £278. He believed every penny of the account was good, but one or two of the shareholders had died, and the arrears due from them could, therefore, not be claimed. The last call was made in July of last year, and some of the arrears had been owing since 1891. They had been trying to obtain the outstanding amounts.

A SHAREHOLDER thought the time had arrived when defaulting shareholders should be compelled to pay, and on the motion of Dr. SHARP, seconded by Mr. WORTH, it was decided that the calls due be collected forthwith.

The report of the agents was read by Captain WILLIAMS.

Captain WILLIAMS stated that although he was almost laughed at for what he said two years ago, there was every indication now of a new mine being created by the north lode on the extreme west. The lode was in virgin ground.

Reporting on the progress made for raising capital and disposing of the mines to a Limited Liability Company, the CHAIRMAN stated that previous to his return from London on the 10th inst., Mr. William Charles called and saw him there many times—meanwhile he (Mr. Charles) was having interviews by appointment with mining authorities in the City, on several of whom he (the Chairman) personally called, resulting as follows:—Generally the individuals referred to were pleased with the draft prospectus, the longitudinal section, and other papers connected with the scheme. They were of opinion that shortly there would be a better price obtainable for tin, that matters should not be unduly hastened for obtaining the object in view; as, if the price of tin were shortly to have a reasonable rise, there would be no difficulty in successfully floating the company. Several influential individuals had kindly promised their assistance; arrangements were made with their London Bankers for taking the account at the Liskeard branch; a prominent London stockbroker and mining shareholder had offered his professional services; a mining man of great ability and large experience in the City and elsewhere, had consented to undertake the duties of the London office for the registration of transfers, reports, &c., and would assist in promoting the company. He added that the total number of approvals received to the scheme for transferring the property to a limited liability company amounted to 9948 shares, leaving a balance of 675.

After some discussion, the CHAIRMAN stated that the committee had thought it desirable a call of 5s. should be made—(hear, hear)—and recommended that 2s. 6d. be paid within a month, and the remaining 2s. 6d. within three months, a discount of 5 per cent. to be allowed if the call were paid within the specified time.

Mr. COLMER proposed a resolution to this effect, and took it that if the scheme they had in view was carried out the new company would refund them what they paid in liquidation of the present debt. He ventured to say that no mine in Cornwall could exist on the present price of tin—not even Dolcoath. They looked forward, however, to an improved price, and to a successful future for Phoenix.

Mr. SHEARM seconded, and the resolution was carried without discussion.

**MOONSTONE GOLD MINING COMPANY.**—The annual general meeting of the Moonstone United Gold Mining Company (Limited) was held on Tuesday, at Winchester House, Mr. James Martin presiding.—In moving the adoption of the report and accounts, the Chairman stated his conviction that if the company had had from the outset proper management, they would to-day not be having such a poor report, but would be meeting with a recommendation for the payment of a dividend. Altogether the ore crashed by tributers for the period ended December 31 produced £3887, giving an average of 9 tons crashed per week. Remembering that, working in the desultory manner in which they did, the tributers had produced such satisfactory results showed that had the property been worked by the company much better results would have been obtained. Mr. Murdoch, without the authority of the directors, let the best portions of the mine on tribute. The policy of the board for the future was to follow the reef up in a southern direction until Mr. Macfie arrived, and they had consulted with him, or until the tributes expired, which would be in November, when they could work the richer end of the mine. As to the proposal, mentioned in the report, for the purchase of an additional property, they had had telegram stating that the offer was withdrawn. The board had determined that until a dividend was paid to the shareholders they would take no further fees. In conclusion, the Chairman read a telegram just received from the property stating that a crushing of 34 tons had resulted in 97 ounces of retorted gold.—Mr. S. C. Platts, in seconding the motion, described the unsatisfactory state in which he found affairs at the mine upon his visit, and narrated the arrangements he made for the future management. To his mind the prospects of the mine were very hopeful if it were to be worked under good management; were the property his own, he should not rest satisfied until he had proved the underlay of the reef, which would cost about £1000.—Some short discussion having ensued as to the expenditure, the motion for the adoption of the report was put and carried.

**BRITISH TRADE WITH SICILY.**—The British Consul at Palermo, in his report on the trade of Sicily during the past year, has occasion to deplore the continuous decrease in the amount of British shipping entering and leaving the ports of that island. At the port of Palermo there was a sensible falling off, and a considerable decrease at Messina, Catania, Girgenti, and Trapani, while at Marsala and Syracuse the average of the previous year was only just maintained. This he attributes principally to the great increase in the number of ships flying the German, Austrian, and Belgian flags, and partly to the prevalence of cholera. For many years the carriage of all freights between Sicily and the United States was conducted in British bottoms, but now North German and Hamburg-American claim their share of that traffic. Sulphur appears to have been the only flourishing industry of the island, the export of which is always on the increase, notwithstanding the fact that the constant excess in the output has a depreciatory effect on the value.

## NORTH OF ENGLAND INSTITUTE OF MINING & MECHANICAL ENGINEERS.

MEETING AT WHITEHAVEN.

ON Thursday the general meeting of the members of the North of England Institute of Mining and Mechanical Engineers was held at Whitehaven.—Mr. A. L. STEVENSON, President, occupied the chair.

### The Cumberland Coal Fields.

The PRESIDENT read a paper by Mr. R. Russell, St. Bees, on "The Extension of the Cumberland Coal Fields, under the St. Bees' sandstone northwards from Maryport and southwards from Whitehaven." Mr. Russell said that the probability is that the Cumberland Coal Fields of the future will extend from Whitehaven southwards to Drigg, with a breadth inland, south of St. Bees, of one mile to one and a half miles, and seawards to an unknown distance, probably some miles. In reference to the probable northern extension of the coal field between Maryport and Waverton on the south, and Skinburness on the north, it would possibly lie at a moderate depth, and extend westwards for some distance under the Solway Firth. Within the Faulted Basin between Abbotsbury and Kirkcubright-upon-Eden, that seams would lie at the greatest depth, perhaps not less than 2400 feet. And south-eastwards from Carlisle carboniferous rocks could be reached at from 1500 to 1600 feet, but whether these rocks in the neighbourhood of Carlisle would contain workable coal seams or not, it remains for the boring machines to prove.

### Miss-Fires in Mines.

Mr. J. D. RENDALL gave an important paper on "Miss-fires in Mines." This arose, he said, either from defective materials or bad workmanship. The defective materials were inferior explosives, arising in many cases from exudation of the nitro-glycerine, also inferior detonators; but the most abundant sources of miss-fires, arising from the use of inferior materials, originated in defective fuses. Even in a fuse of first-class make there were sometimes even lengths in which at intervals of 2 or 3 inches not a trace of powder was to be seen. A piece of fuse burning for 3 inches might hang fire for a quarter of an hour, and this to a miner waiting for a shot to go off was a very long time, and many cases had occurred in which miners had gone back to see what was the matter, and had been injured in consequence. The question then became "How can miss-fires be dealt with to prevent serious accidents?" The usual practice was to remove the stemming, or, by either a wooden or iron pricker, to make a passage in the stemming, and pass through it another cap. Both these practices were most dangerous. Without resorting to this practice, he some time ago carried out two experiments, which showed that miss-fires might be remedied with absolute safety. The unanimous conclusion arrived at by all who witnessed the first set of experiments was that 2 to 5 inches of stemming, according to the nature of the ground to be thrown, was as effective as 2 feet. The other set of experiments were made for the purpose of determining the thickness of stemming through which a charge of gelatine dynamite could be exploded by another charge placed on the top of the stemming. The lesson to be learned from the experiments was that it was quite unnecessary to put more than 3 to 6 inches of stemming in most holes, but this might be increased to 8 inches in deep holes, so as to partly meet the prejudice of the miners generally. Yet even then, in case of miss-fire, all that had to be done was to put in another cartridge, or part of one, into the stemming and the first charge would be exploded. No unramming of the hole was necessary, and no pricker need be used, so that all the risks attending these two operations would be avoided.

Mr. J. L. HEDLEY, Newcastle, Inspector of Mines, said it must not be forgotten that the primary object of the society was for the prevention of accidents, and, considering the large number of accidents occurring in mines by explosives, it appeared to him that the subject of this paper was one that deserved their fullest consideration, more especially as it had been introduced by a member of the Institute, who had had a long connection with the mining industry. The result of the experiments Mr. Kendall had made, he believed, it was his intention to embody in a code of special rules, which would be the means of reducing the number of accidents that occurred too frequently from the use of explosives. He (Mr. Hedley), however, would ask for further information on the point of defective material, and also whether any suggestion could be made to prevent the exudation of nitro-glycerine, from which accidents arose; and also whether miss-fires were not due to the use of frozen dynamite. Were they to understand that Mr. Kendall had proved from actual experiments that a charge of dynamite could be exploded simply with the cap placed on the top of the charge? It was quite true that shots missed fire from inferior detonators, but would it not be advisable to use a galvanometer and test each detonator before it was sent into the mine? Mr. Kendall had said that a defective fuse was the most abundant source of miss-fires. Then why not take the bull by the horns, and do away with the fuse, and use an electric battery? He had no doubt that this suggestion might sound revolutionary to many miners, but if once adopted he felt sure that the change would never be regretted. (Hear, hear.)

Mr. OSWALD, Assistant Inspector, said he had investigated the greater portion of the accidents in the district in consequence of miss-fires for the last nine years, and in nearly all cases the accidents had been caused by the workmen themselves, either by driving things into the charges or by going back to the shots too soon. In some places there was a rule that the men should wait 20 minutes before going back, and where that was enforced there were very few accidents.

A vote of thanks was awarded to Mr. Kendall for his paper. Other papers were read, and the members visited Whitehaven Colliery and other mines in the district.

**THE COAL TRADE CONCILIATION BOARD** held a meeting on Tuesday, at St. Martin's Town Hall, W.C.—Mr. Clifford Smith presided, but none of the miners' delegates were present.—Mr. T. Ratcliffe Ellis read the correspondence with Mr. Ashton, the secretary of the Miners' Federation, in the course of which he (Mr. Ashton) announced that his council would not be represented, owing to the fact that the object of the meeting was not stated in the notice. In reply, Mr. Ellis pointed out that the object was clearly stated as an alteration in the rate of wages, but the actual change had, of course, been left to the board to determine.—The Chairman said they had three courses open to them: (1) To proceed with the consideration of the application for a reduction of wages; (2) that, owing to the absence of the men's representatives, and consequent want of agreement with them, they were entitled to submit the matter to Lord Shand; and (3) to adjourn in order to give the men's representatives an opportunity of reconsidering their position.—Mr. Hewlett moved that the meeting should adjourn to July 3. The primary object of the board was not to settle disputes, but to avoid disputes, and, as a conciliation board, they should seek to be one homogeneous body, and not to be divided into two hostile camps.—Mr. Davy seconded the resolution for the adjournment, which was carried.

At the end of 1893 the ten deepest mines in Victoria were (according to the official report to the Minister for Mines):—Lansell's 180 Mine, Bendigo, 3000 feet; New Chum and Victoria, Bendigo, 2800 feet; New Chum Consolidated, Bendigo, 2632 feet; Lasarus, Bendigo, 2595 feet; New Chum Railway, Bendigo, 2533 feet; Victory and Pandora, Bendigo, 2500 feet; Carlisle, Bendigo, 2485 feet; Victoria Consols, Bendigo, 2482 feet; Magdala, Stawell, 2409 feet; and New Chum United, Bendigo, 2396 feet.

## THE SALT INDUSTRY OF CARRICKFERGUS.

By ALEXANDER MISCAMPBELL.

(From a Paper contributed to the Federated Institution of Mining Engineers.)

IN 1845 the Marquis of Downshire, inspired by the laudable desire of developing the mineral resources of the locality, commenced operations in search of coal about 2 miles north of Carrickfergus, in the county of Antrim. A circular shaft was sunk 9 feet in diameter, lined with brick to a depth of 750 feet, and from that point a boring was made a further 500 feet, but without finding coal. The labour, however, was not fruitless, for at a depth of 550 feet a workable seam of rock salt was discovered, about 120 feet in thickness, with a couple of thin seams of mixed rock and marl interlaid.

A company was then formed under the title of the Belfast Mining Company, with a capital of £10,000, to work the rock salt and manufacture of white salt.

Naturally the first consideration was to have their mine at the nearest possible point to a shipping port, and consequently a trial shaft was sunk about 1½ miles nearer the harbour of Carrickfergus (which is adjacent to the main line of railway) and due south from where the rock-salt had been found. Although the workings were carried to a much greater depth than the company's advisers considered it necessary, the rock was not struck. A second trial shaft was then put down about a mile eastward of the first, with a similar result.

The company were then reluctantly compelled to return to the neighbourhood of the original discovery, and at about 120 yards south-west therefrom a couple of shafts were sunk. These were 4½ feet square, 36 feet apart, and lined with 3 inch pine timber. A separate water-shaft of the same size was also sunk 120 feet deep, from which the water was pumped by means of an ordinary 6 inch lift and force pump attached to the winding engine.

### Mining Operations.

Round the bell-mouth of the shafts the rock was worked out, leaving a clear space of 60 feet in diameter. Outside of this four shaft pillars of solid rock salt were left about 18 feet square, to support the roof and overlying strata; the other pillars of the mine were set out about same size and 48 feet apart. About 36 feet of the lower portion of the seam of rock salt were worked. The greatest dip of the bed was about 5 inches to 3 feet in a north 10° east direction.

The foremen being Cheshire men, the Cheshire plan of bringing the rock to the shaft mouth was adopted—viz., low trucks were run on the sole of the mine, and on these from the face of the working to the shaft were carried wooden buckets capable of holding 20 cwt. of rock salt. It will readily be seen that in this mode of ferrying it was a difficult matter to follow the bed of rock up-hill or down-brae, and it was only possible to do so by sinking the shaft, and then at intervals lowering the drift roads to such a level as to make a moderate gradient for the men to push the trucks. As a natural consequence, the mine was worked much more on the level drifts to the east and west than on the dip or rise to the north or south. The buckets in which the rock salt was brought from the face of working were lifted to the surface by means of an ordinary winding engine and a flat (6 by 1½ inches hemp rope).

A railway wagon tramway was constructed from the mine to the main line of railway to Belfast, for the conveyance of the rock salt for shipment at that port. At Belfast, the company erected their salt-making works, where the business was carried on for many years. This mine was worked from 1852 till 1870, but in the year 1865 indications of crushing were observed in the shaft-pillars, which, gradually extending to the other pillars of the mines, forced the directors to the conclusion that the mine was becoming unsafe for working, and they decided upon abandoning it, and putting down other shafts, which they accordingly did at a distance of 500 feet to the northward. The writer may here point out that the shafts and pillars in this mine were laid out the same size as in Cheshire, the fact evidently having been overlooked that the thickness of the strata in that district was only one-fourth that of the overlying strata in the district under consideration. About 10 years after work was stopped, the shafts fell in, and the mine is now supposed to be full of brine.

As was to be expected, the new shafts being sunk to the dip of the mineral and rise of the ground, they had to be sunk about 80 feet deeper than the old ones, but at this depth a seam of rock salt equal in quality and thickness to the abandoned one was reached. The same system of working was carried on here, but eventually the difficulty of ferrying the rock from the face of working was overcome by laying down tram roads, and the adoption of ordinary iron trucks. These are hauled by a stationary engine on the surface and a steel wire rope, at a considerable reduction in the cost of production. Rock salt cutting machines have not been introduced into any of the mines. The boring is done by the men with a chisel about 6 feet long, round in the middle, and sharpened to 1½ inches at the points. The holes are usually bored from 3 to 4 feet in depth, and charged with loose blasting powder tightly rammed. Dynamite and other explosives have been tried, but abandoned.

Work is commenced say 10 feet below the top of the seam of rock salt (8 or 9 feet being considered the very smallest quantity of rock salt that can with safety be left as a roof). A 6 feet cut is then made for a considerable distance, the loose rock salt being shovelled over the face as the work proceeds. The remaining 30 or 40 feet of rock are worked from above, vertical holes being bored, charged with powder, and several shots fired simultaneously. The workers who make the upper cut are known as roofers, those who get the body of rock salt as lynchors, and the men who fill and bring the rock from the face of the working to the shaft are called ferriers. The antiquated system of conveying the rock salt to the works by rail and dissolving it there was abandoned as soon as the property came into the writer's hands, and melting cisterns have been constructed at the mines, where the rock is made into brine and run through cast-iron pipes to the works at Carrickfergus, there to be made into the various salts of commerce.

### Extent of the Industry.

In all, 12 shafts have been sunk for rock salt in this district within a distance of two miles, and in a line running parallel with the sea shore. In six of these rock salt has been found, but in the other six little or no traces of it has been discovered. The facts appear to indicate three distinct basins.

1. *Duncrue Basin*.—Comprising old Duncrue Mine, French Park, and Maidenmount Mines, at present worked by the Salt Union (Limited).

The workings of Burleigh Hill Mine eastward prove that the Duncrue basin does not extend to Burleigh Hill eastward, while a blind shaft in Googerty's land, and the two sunk by the Belfast Mining Company, prove the same towards the south-east, south, and the south-west.

2. *Burleigh Basin*.—This is a very thin seam of rock salt, and of small extent. The rock salt is cut off on two sides of the mine, and altogether appears to be a mere pot.

3. *Eden Basin*.—There are four rock salt mines clustered in a very small compass, round what has been referred to in Iniskimmin's *History of Carrickfergus* as a salt spring, with valuable medicinal qualities. It is apparently the centre of the basin, and the seam dips towards it at the rate of one in three or four. This basin also appears to be a very small one, as unsuccessful boreholes have been put down to a great depth east and west and south of the present working mines.

A REUTER'S telegram from Capetown states that the Donald Currie's *Tantalum Castle* takes gold to the amount of £250,000.



## THE MANGANESE MINES OF LAS CABESSES, PYRENEES, FRANCE.

By C. ALGERNON MOREING.

At the monthly meeting of the Institution of Mining and Metallurgy, held on Wednesday evening, at the Jermyn-street Museum, presided over by Professor HUNTINGTON, Mr. C. ALGERNON MOREING read a paper on the above subject. He said:—The mines yielding carbonate of manganese at Las Cabesses, in France, are of special interest to mining engineers, as they are the only mines of this mineral worked on a large commercial scale—and, indeed, the deposits are the only ones of large size as yet discovered; moreover, having so recently been opened up, their existence and history is unknown to many members of our profession.

Till a quite recent year (1890) the only ore of manganese known to commerce was the black oxide, the main sources of supply being Chili and the Caucasus. In 1880 a deposit of black oxide of manganese was discovered at Las Cabesses and mined in a small way by open workings. From 1881 to 1888 about 5000 tons of oxide, containing from 45 to 55 per cent. of metallic manganese were produced; at a depth of a few yards from the surface, a hard greyish rock of a marble-like appearance was met with, and the workings were abandoned. Some six months later one of the owners, who had been absent in Spain, returning to the mines found that some of the greyish rock that had been thrown out on the surface had changed colour and become black. He sent it to be analysed, and was informed that this, to him, apparently worthless rock, was carbonate of

### Manganese of Great Purity.

containing 45 per cent. of metallic manganese. (It was a case of the Kimberley blue ground over again.) The pyrolusite that had been worked before was nothing but the decomposed and altered outcrop of this carbonate ore (diallogite).

In the following remarks the author will endeavour to give a succinct description of this important mineral deposit which is destined to play a considerable part in the supply of manganese ore to the iron furnaces of Europe and America.

The mines are situated 15 kilometres (9·3 miles) from St. Giron, in the department of Ariège. They are held under a concession from the French Government, the only obligation being the payment to the Government of 5 per cent. of the net profits of the undertaking, and compensation for surface damage effected by the mining works. A plan of the concession, which covers an area of 7 square kilometres (1729·05 acres), forms Fig. No. 1 of the accompanying drawings. The district, being in the Pyrenees, is of course exceedingly mountainous. The concession itself is situated on the side of a mountain which rises very precipitously to the north from the Valley of the Nert. It is interesting that "Rivière Nert" means in the patois of this part of France "black river," and has evidently taken its name from the black oxide of manganese met with in its bed. The geology of the district is readily grasped, and presents

### No Features of Complication

or difficulty to be accounted for, except the deposit of manganese ore. The strata strike east and west, and have a regular dip to the north of about 72°. The lower beds consist of silurian schists, overlaid conformably by calc schists, which pass imperceptibly in places, into mixed strata of "griotte" (marble, with red and brown spots) and limestone, these being succeeded by a bed of pure griotte, which is overlaid by the shales of the coal measures, as shown on the section.

The calc schist is distinguished as of Lower Devonian, the mixed griotte and limestone as of Middle Devonian, and the pure griotte as of Upper Devonian age. Specimens of the various rocks are submitted.

The manganese ores are found in the middle beds, or mixture of griotte and limestone. The deposit at Las Cabesses, so far as at present developed, is a mass having a length of about 60 metres (196·8 feet), and a width of about 50 metres (164 feet), and is now opened to a depth of 70 metres (229·6 feet). An interesting problem for mining engineers is to formulate a reliable theory as to the formation of this deposit, as an accurate knowledge of the mode of its deposition would enable the researches to be continued in an intelligent and scientific manner. Other points of interest to practical men are:—(1) How to work a deposit of this character so as to extract the ore with the least waste, at the smallest expense, and without danger to the workmen.—(2) How to handle and treat the ore for market.

The mines up to the present have been

### Worked by French Engineers.

and a series of levels have been driven at depths of 8, 14, 18, 22, 25, 29, 33, 39, 45, 52, and 57 metres, shafts being sunk from the surface at different points to the 25 metre and 33 metre levels, and an adit 203 metres in length driven to intersect the deposit at the 52 metre level. These levels were connected by numerous irregular holes in the nature of winding staircases, and there is one continuous connexion from the 52 to the 33 metre level for the removal of the ore. The levels themselves are most irregular in form, as will be seen from the accompanying plans. It will also be noticed that these levels have been driven so close together that there is, in most cases, only 4 metres distance between the roof of one and the sole of another, and sometimes even less. No stopping was attempted, all the ore being extracted from drifts in an expensive and wasteful manner. Moreover, being thus honeycombed, the mine was left in a very awkward condition to deal with in the future. It would have been desirable to work the mines by quarrying, but this was impossible owing to the deposit plunging to the west, as described, under the griotte formation, so that very soon the hanging wall is under a great depth of unsafe material. A further objection to open workings in these mountains consists in the winter storms of snow and sleet, which would much impede such operations.

### The Method of Mining

adopted by the author, who, since the acquisition of the property by an English company from the former owner (M. Charles Simon, of Bordeaux) has directed the operations as consulting engineer, may be briefly outlined as follows:—

The deposit is to be divided into convenient horizontal slices or layers, each having a vertical thickness of about 20 metres. At the bottom of each layer about 4 metres of solid ground is to be left intact to serve as a floor, which will support the debris as it is filled in to take the place of mineral stopped out. The 33 metre level has been selected as the foundation or floor for the extraction of the first of these horizontal slices of ground. A series of drifts, more or less parallel, with branches therefrom, will divide the deposit into sections convenient for extracting and handling the mineral. These drifts will be protected on either side by substantial stone walls (0·90 metres wide), except where pillars of barren rock happen to form one or both of the sides, in which case the walling will not be necessary. The width of these drifts, or the space between the above-mentioned walls, will be 1m. 40 rising to a height of 2m. 10, when they will be covered with stout timbers, having a minimum diameter of 0·10 metres at the smallest end. During the construction of these

drifts all open spaces between the sole and roof of the 33 metre level will be gradually filled up with debris; and as soon as this is completed, the extraction of the ground above the 33 metre level will be proceeded with in the ordinary way. Chutes will be carried up, about 8 metres apart, along these drifts for

### The Delivery of the Ore

from the various workings above. There are two shafts which can be made use of. These are shafts Nos. 5 and 6, and they will be utilised for the purpose of bringing down from the surface such debris for filling in, or rock for building walls, &c., as may be required from time to time. Now, as the upper portion of this deposit is more or less friable, being composed chiefly of bi-oxide of manganese, it is proposed to commence at the surface and work downwards, stripping off the deposit to its limits in horizontal layers. In this way the necessary debris for the filling up of the interior of the mine will be obtained while the load of loose material above the 33 metre level will be reduced, and the risk of any accident by subsidence minimised.

The production of carbonate of manganese at present is about 100 tons per day, the ore being carried from the mouth of the adit to the roasting kilns, situated in the Valley of the Nert, by a cable tramway of the Otto-Pohlig system, 1600 metres in length, and having a fall of 238 metres, or one in 6·72. The ore is roasted to drive off the carbonic acid in kilns similar to those used for calcining carbonate of iron. Fig. 5 shows the type of kiln employed, which consists simply of a cylindrical sheet-iron shell, open at both ends, lined with fire bricks, and resting on iron standards rather less than 1 metre in height. There are eight of these kilns at present in use. Although

### An Extremely Simple Operation.

the roasting requires greater skill and care than does that of carbonate of iron, as the ore has a tendency to slag. The furnaces are so erected that they can easily be got at from any side, and so that the air can have free access to them. The details of construction may be seen by reference to the drawing. They are 5 metres high, and 3 metres wide at the mouth. They each have a capacity of 45 tons of raw material, but are charged about 50 to 60 centimetres higher than the mouth of the kiln, the nominal capacity being thus increased by from 2 to 3 tons. Under the kilns there is room for 10 tons of calcined mineral, so that, from the ground to the top, they hold about 55 tons of ore each.

The loss in weight of the ore for the year 1893 was 32 per cent. on the average, which may be regarded as a very good result, as the mineral contains from 33 to 36 per cent. of carbonic acid.

The ore as broken in the mine contains a considerable mixture of marble or barren matter, and consequently a system of cobbing and hand-picking, both before and after calcination, has to be resorted to, in order to remove the waste which would otherwise seriously affect the value of the calcined ore in the market.

The picking of the ore before calcination is at present insufficiently done, owing chiefly to the lack of water and mechanical appliances.

Most of the ore of "walnut" size is not assorted at all, but goes direct to the second class kiln. All large stuff is tipped at present on to a platform and washed by hand pump or syringe. When the ore is of good quality, the sterile rock and second class ore are picked out, the remainder going direct to the first-class kilns. When of lower grade, the barren rock and first-class ore are picked out by hand, the rest being second-class ore. All mineral having a preponderance of "small" is tipped on to an iron grizzly (having spaces of 5 centimetres between bars), and the small stuff which passes between the bars is then classified by a trommel (holes 1·80 centimetres square), worked by hand, from which the "coarse" goes direct to the second-class kilns without assorting, and the "fine" is loaded direct into wagons and sold as "raw product." The larger pieces which fail to pass through the grizzly are hand-sorted into first-, second-, and waste.

### After Calcination

the ore from the first-class kilns (except the larger pieces, which are picked out and loaded into wagons direct as firsts) is tipped on to inclined floors and assorted—i.e., all that is waste or doubtful, or insufficiently calcined, is picked out. The smaller stuff (having a maximum size of a hazel nut) is put to second class, the balance going to first class.

The ore from the second class kilns, after being watered in order to slake the lime that it contains, is dumped on to another part of the above-mentioned inclined floors, and the slaked lime and fine taken out of it by means of a trommel.

It will be noticed that the ore is divided for market purposes into first class calcined, second class calcined, and "raw product." The average contents are:—

1st Class	50 to 54 per cent. metallic manganese.
2nd Class	43 to 45 " "
Raw product	33 to 36 " "

Plans are now under consideration whereby the ore, before calcination, will be handled more automatically, and it is expected that with better facilities for classifying the ore, the calcined product drawn from the first class kilns will require but little assorting. There would be a larger proportion of the first class ore than at present.

On account of

### The Average Size of the Ore

charged into the kilns as first class being larger than that which goes to the second class, the calcination thereof is more rapid, which can be easily understood, and, moreover, less coke is used with the first class than with the second class ore.

In conclusion, the following tables, compiled from trustworthy sources, are submitted, showing the composition of various manganese ores and the production thereof:—

Table I. gives analyses of Las Cabesses ore—not of specimens, but the average of sales of many thousands of tons.

Table II. shows the composition of manganese ores from various other parts of the world.

Table III. shows the manganese production of the United Kingdom; a poor record, exhibiting a great falling off in 1893 from even the small production in 1892.

Table IV. shows the production in Chili since 1885.

Table V. shows the production of the world since 1888.

Table VI. shows the weight of ore imported into the United Kingdom during the years 1891–93.

These figures indicate the immense increase in the consumption of manganese in the last few years, a consumption ever augmenting; and it must be satisfactory to the great consumers to know that there is such a magnificent deposit of the purest and richest ores at the easily accessible mines of Las Cabesses in the Pyrenees.

### THE DISCUSSION.

The CHAIRMAN invited discussion upon the paper.

Mr. S. Herbert Cox sent the following remarks, which were read by Mr. CLAUDET: Mr. Moreing's paper is one which seems to me to be of very special interest because it describes a deposit which, as far as I am aware, is absolutely unique at present, and because on that account it opens up a field for research which is new. The very history of the discovery as given by Mr. Moreing shows that the valuable carbonate ore which is now

being worked was neglected at first, and only discovered by chance to be valuable, and as I happen to have visited the mines in question, I am sure Mr. Moreing will agree with me in saying that the appearance of the ore is such that even a mineralogist might be excused for passing over the deposit, if he only examined it casually, without recognising the mineral as diallogite. As a matter of fact, the stone does not resemble the specimens of diallogite which we see in museum collections, and find crystallised in cavities in other ores of manganese, but has a massive character, is more of a light brown than a pink colour, and is certainly not what one would have expected to see as a massive deposit of carbonate of manganese. So much was I impressed with this fact when I visited the mines that I feel confident there must be similar deposits as yet undiscovered in other parts of the world where similar conditions prevail. As regards the origin of the deposit, the explanation given by Mr. Hooper is, I should think, the correct one, for, of course, the carbonates of lime, magnesia, iron, and manganese are isomorphous, and will replace one another in any proportions. It is, moreover, a well-authenticated fact that where the limestones of the Ohio petroleum region of America have become dolomitised—in other words, where magnesia has to some extent replaced the lime—the limestone becomes more or less porous, and acts as a reservoir in which the petroleum can be stored, and probably the same porosity would be induced by a substitution of manganese for part of the lime, so that when once this replacement began it would be quite natural to suppose that, given the existence of water carrying manganese in solution, the complete alteration of limestone to diallogite would be the natural outcome. But this does not give us any clue as to the continuation of the deposit, and when Mr. Moreing says that the only course open to him is to follow what he has, he has, in my opinion, said all that he can about it. We are quite unable to predict in what direction limestone caves will extend. They open to large chambers, narrow down to holes through which one can hardly crawl, and again open out to vast halls at various levels, and no geologist and, I venture to think, no mining engineer has ever attempted to predict in what direction the next chamber is likely to be found, and the same remarks apply equally to the deposits of carbonate of manganese in limestone. I have read with a great deal of interest Mr. Moreing's remarks about the method of working that he is adopting, and trust it will prove both successful and economical. It can hardly fail to be an improvement upon the former ridiculous system of working which has been described, and in which the nearest resemblance can be traced in a rabbit warren. There were drives everywhere, and stopes were unknown, while the mineral was handled time after time until it eventually got out of the mine by the Simon adit. Perhaps not the least useful part of Mr. Moreing's paper is to be found in the carefully prepared tables at the end of it, and I am sure that all engineers will join me in thanking Mr. Moreing, or any one else who will compile in a handy form for reference facts such as these.

Mr. A. G. Charleton sent the following remarks, read by Mr. G. E. COLLINS:—With reference to the geology of the district, I note that the deposit of manganese described by the author occurs in metamorphic rocks of Devonian age, and my own experience in other parts of the Pyrenees has been that this particular formation carries the principal ore deposits (silver-lead and zinc, as well as antimony and manganese) found up to date in that part of the world. With reference to the proposed method of working, I would venture to suggest that in place of leaving the ground intact, below the drifts, which it is proposed to keep open by means of stone walling, it might be better and cheaper to drive the levels in the first instance in solid ground, and leave a pillar above them, and removing the ore on top of the pillars, in horizontal slices, either by drifting stopes, and filling the spaces up from the footwall towards the hanging, or by the method pursued at the Chaplain Mine, Michigan, for example, known as rooming and filling. The ore being sufficiently firm to stand without timbering (in stopes 20 feet wide, extending the full width of the ore body). The rooms are carried up by a series of stopes taken 9 feet high, and after the completion of each stope, the room is filled to within 4 feet of the back; small cars being used to transport the rock filling, to avoid the expense of shovelling. If pillars were left overhead they would of necessity have to be pierced at intervals for passes to communicate with the levels, whilst the waste would, of course, be introduced from above. Supposing the ore to have been all removed above No. 1 level in this manner, and No. 2 level driven, the same operations would be repeated above the pillar forming the roof of No. 2 drive, and the stopes carried upwards till all the ore had been stopped out, up to the original floor of No. 1 drive, which would eventually be replaced by "filling." I should fancy that unnecessary walling and timbering might be saved in this way. I would also like to know if Mr. Moreing can give us figures of the present cost of mining, picking, and calcining the ore, and it would add additional interest if he would tell us the current value of the various grades of ore the mine produces, and what have been their ruling prices during the last few years.

Mr. G. E. COLLINS added the following remarks of his own:—Mr. Moreing seems to be under the impression that the deposits which he has described are the only ones of considerable size yet discovered. I am afraid that is not quite correct. I take it, of course, that he has looked up the literature of the subject, and is, furthermore, aware of the deposits of similar ores existing as beds near Barmouth, near Chevron, in B-glum, and in Newfoundland. There are on the table some very typical specimens of the former, which shows its banded structure very clearly. The workings extend over a length of about 12 miles, and, according to Dr. Foster, are probably all in the same bed, which is much faulted and contorted. But the more important deposits which I have in mind are situated in the south of Spain, where they were discovered by an English gentleman, a member of this Institute, apparently about the same time as the Pyrenees deposit, and under very similar conditions. The deposits, which are both large and numerous, are in every case the "cores" left in the working out of the black oxide ore into which their upper portions had been altered. As at Las Cabesses, they were universally supposed to consist of barren rock, until examined by the gentleman of whom I have spoken. They seem to be lenticular masses, situated along lines of weakness, and probably consisted originally of carbonate, which has subsequently been altered by siliceous solutions, and the outcrops oxidised by atmospheric agencies. The manganese mines of the Huelva district, as no doubt many here know, have usually more the character of veins, and are especially remarkable for their veinstones of red jasper. This, perhaps, only represents a further stage in the silicification of which I have spoken. As already stated, the deposits are large. In one case, I think, the exposure—at the contact between porphyry and slates—measured 100 by 40 feet. The conditions as regards transport, &c., are distinctly favourable, so that they ought to be able to compete successfully with the Pyrenees deposit, but for one serious drawback. The average Mn contents are about the same—about 40 per cent. raw. The silica, however, varies from 12 to 20 per cent., and even higher; and this, of course, would be increased by calcining. Hand-picking would, no doubt, reduce it, but it would certainly remain much more siliceous than the Las Cabesses ore. Another drawback is the high percentage of phosphorous—about 20. This may, however, be produced by infiltrations from the surface soil, and if so, would



doubtless lessen on getting deeper away from its influence. Judging from the descriptions received the deposits could in most cases be worked by open-cutting. As will be seen from the three little specimens which I have brought the ores show the most charming variety in appearance, and also vary considerably in mineralogical composition, the most common being the silicates tephroite and rhodonite, and the carbonate diallogite. I should mention that the gentleman who discovered the deposits thought the latter an alteration product from the former, and that the silicates were of igneous origin. In this connection it would be interesting to know more exactly the mineralogical composition of the Las Cabesas ore. Mr. Moreing speaks only of diallogite.

Mr. Albert Calvert sent the following remarks, read by the SECRETARY:—In reference to Mr. Moreing's interesting paper, manganese is a much more common mineral than, perhaps, the author of this paper would lead us to suppose. It would not be beyond the sphere of possibilities to give at least a thousand localities. It is generally treated by gold, silver, tin, and copper miners as a worthless mineral. Manganese has the greatest affinity for oxygen, and, therefore, it is the natural consequence on the slightest surface decomposition that the carbonates should be replaced by oxides. The author says "an interesting problem for mining engineers is to formulate a reliable theory as to the formation of this deposit, as an accurate knowledge of the mode of its decomposition would enable the researcher to be continued in an intelligent and scientific manner. With regard to this theory, it was amply handled and exhaustively dealt with by my grandfather (the veteran gold miner) in his works between 40 and 50 years ago, when he explained the laws governing the mineral solutions, their deposition and precipitation, and the replacement of one mineral by another. He claims that the work is still going on even down to the present time, and that all minerals are affected by these alterations. Gold being a non-oxidisable metal would become native on the decomposition of any ore or rock near the surface in which it had been held in chemical combination with other substances, but manganese, on the alteration or decomposition of any compound, would in depth become either a silicate or carbonate, whereas at or near the surface it could be nothing else than an oxide.

Mr. J. MacTear had been especially interested in the paper, having been for some time engaged in the manufacture of carbonate of manganese. As to the formation of the deposit, he had little doubt that the theory of the double deposition of the kind mentioned was the correct one. Mr. Moreing had given them in the plans what he supposed was a little prophecy, for it would be difficult for him to know what he was going to get unless the shafts were sunk. In enumerating the various centres of supply, the author had stated his opinion that Chile was the chief source. He was inclined to think that the Caucasus had been for some time the chief source of supply, and he had taken advantage of a recent opportunity to learn something about the deposits there. It appeared that they were very rich—some of them were exceedingly rich—but the difficulty in Russia of getting capital, and the still further difficulty of getting trustworthy people to deal with, had prevented many of them from being opened up. The Russian proprietors were not able to deal with the mines themselves, and what with the difficulties of satisfying the tax-gatherers, many of them had been left undeveloped, and some had been abandoned. The manganese from them was exceedingly rich, and for many years their ores were much sought after by chemical manufacturers.

Mr. JOSEPH GARLAND referred to the French quotation in Mr. Moreing's paper, and thought it should have been rendered into English. There was no greater justification for quoting in French than in Spanish and German, and it was hardly fair to expect a mining man to know all those languages. The author's subject was one of peculiar interest, and it could hardly be doubted that many members of the Institution knew very little about these remarkable deposits. The paper contained a good deal of information respecting the discovery of the deposits and the old mode of working them, which seemed rather an absurd one. There were, however, a good many omissions. The author had not, for instance, told them where the chief markets for the calcined ores were, nor upon what basis the various classes of ores were sold. Mr. Moreing had given a tempting opportunity for the formation of a theory of deposition, but as he himself had hesitated, with his knowledge of the district, to form one, others could hardly rush in where angels feared to tread. The author had stated his opinion that an accurate knowledge of the mode of deposition enabled researches to be continued in an intelligent and scientific manner; but was the converse true? and could not researches be carried out in an intelligent and scientific manner without a knowledge of the mode of deposition?

Mr. BEWICK was sorry that so little had been said as to the method of working the deposits, which, after all, was the important matter for the mining man. There were very few similar deposits in this country, but in West Cumberland there were some deposits of hematite of a similar nature, which had been worked with great success. If there were any members of the Institution who knew how these deposits were worked, any explanation which could be offered would be very interesting.

Mr. PERCY FOWLER congratulated the Institution upon the reception of so interesting a paper upon a subject which to all of them must be comparatively new. The author had carefully abstained from giving any details as to the economic workings of the company with which he was connected, and probably there was some reason for this. Mr. Collins had referred to other deposits which could, perhaps, be worked more economically, and they would like to know where these were situated. As far as he could gather, these deposits contained 20 per cent. or 25 per cent. of silica. In the course of his professional experience he had frequently come across what he had thought to be splendid deposits of manganese, but upon analysis they had always proved to be too full of silica for practical use. The ores of Chile and the Caucasus gave an average of about 7 per cent. of silica, which was generally conceded to be about the limit of workable first-class ore. Spain and Portugal had yielded ores of about 10 per cent., and other countries in varying proportions up to 24 per cent. In dealing with these ores he should wish very much to know whether there was a market for any which contained over 7 or 8 per cent. of silica? Deposits of manganese occurred, in fact, in many countries, but were always rendered commercially valueless by the large proportion of silica.

Mr. G. E. COLLINS reminded the meeting that the discussion was not directed towards the commercial but the technical aspects of the subject, and he was perfectly aware that the large proportion of silica in the ore would severely handicap it in competition. At the same time, he believed the limit to be 15 per cent. and not 7 per cent.

Mr. CLAUDE VAUTIN wished to ask the author whether calcination in revolving furnaces previous to shipment would not increase the value of the prices.

The CHAIRMAN thought the paper had been of a very practical and useful kind, and that a similarly satisfactory discussion had followed upon it. The point of the greatest interest to himself had been the metallurgical treatment of the ore. Mr. Moreing had somewhat disappointed him by giving him, so to speak, a stale bun. He told them that the present method was old, and that something else was being substituted for it. He could have wished to hear something about this new method. Perhaps at

present, however, it was not sufficiently advanced for a description of it to be given, and, accordingly, they must hope to have that at some future time. Some further details as to the source of supply of the coke used and the price of it would have been very interesting, as also whether the marble, of which there were samples on the table, had ever been successfully worked; but the points arising out of the discussion were already so numerous that he feared to impose a further burden upon the author.

Mr. MOREING, in reply, expressed his pleasure at the interest which had been taken in the subject of his paper. Mr. Charleston's criticisms as to the present mode of working the mine were nullified by the fact that the speaker had had to fit in his process of working with the works which had been done before him. Many of the levels referred to had already been driven, and when he was called in he had had to fit in his new system of working to facts as he found them. Mr. Charleston and one or two other gentlemen had remarked on the fact that he had failed to furnish figures as to the cost of getting the ore, and of the sales and other matters connected with the commercial aspect of the mine. It was hardly necessary for him to say that he had purposely avoided these matters, because they concerned the directors of the company; and he, as their technical adviser, was not going to give to the world particulars of their markets and profits. Mr. Collins appeared rather to have confounded silicate of manganese with carbonate of manganese. He had especially stated in his paper that these were the only mines of carbonate of manganese. He knew there were plenty of silicate of manganese mines, but these from the point of view of the iron smelter were absolutely worthless, and he maintained that those he had mentioned were the only mines in the world, now worked, of carbonate of manganese. With regard to the remarks of Mr. Collins as to the percentage of silica permissible, it was a fact that any considerable proportion rendered the ores quite unmarketable, owing to the discovery of purer ores in France and to the superior nature of the Chile ores. Mr. Albert Calvert seemed to think that the author knew very little about the subject of manganese, and that he was very ill-informed as to the numerous deposits of manganese all over the world. It was a pity Mr. Calvert was not present, for he would see that the speaker had put upon the table specimens of ore taken from Japan, Spain, Chile, Russia, France—in fact, from nearly all over the world. He was perfectly aware that oxides of manganese were found in nearly all parts of the world, but Mr. Fowler had hit the right nail on the head when he said that it was the case with the vast majority of the discoveries of manganese that, when analysed, the deposits were found to contain too much silica to admit of their having a commercial value. There were huge deposits of manganese in Australia, but when tested they were found to contain too large a percentage of phosphorus to admit of their competing with the purer ores of Chile and these new mines. Mr. MacTear's remarks had aroused his deepest interest, but some of the points he had raised concerned rather the metallurgist than the mining engineer, and upon that account he had been unable to devote necessary attention to them. He would, however, be careful to obtain a full analysis of the ore, and perhaps at some future time he should have the pleasure of discussing the matter with Mr. MacTear. He was of opinion that the ores from Chile were purer than those from the Caucasus. The Chile ores always fetched a higher price, and were preferred to those of the Caucasus. Mr. Garland, whom they were very glad to see present, had been unable to attend earlier in the evening, otherwise he would have heard the rendering the author had given of the French quotation in the paper, and also his reasons for putting it there in the original. His remarks as to the advantage of a knowledge of how the deposits came into existence were merely intended to convey that such a knowledge enabled the explorations for the extension of the deposits to be carried out with greater chances of success. The deposits of hematite in Cumberland mentioned by Mr. Bewick differed from those he had described in that they were comparatively soft and loose. He would answer Mr. Vautin's enquiry as to the advantage of a previous calcination of the fines in a revolving furnace by saying that they were always fortunate enough to be able to sell the whole of the fines in their ordinary condition, and there would hardly be any advantage in putting up works of calcination. He would conclude by stating, in answer to the President's enquiry, that they experienced no difficulty in procuring locally any quantity of coke at a very reasonable price.

The proceedings terminated with a hearty vote of thanks to the author.

## TIN TICKETING.

A TICKETING for tin ores was held at Redruth, on Tuesday, with the following result:—

VALUES OF ORES SOLD BY EACH MINE.			
	Tons cwt.	Per ton.	Value.
Carn Brea No. 1	14 0	£36 12 6	£512 15 0
do No. 1a	14 0	36 17 6	516 5 0
do No. 1b	14 0	36 15 0	514 10 0
do No. 2	2 0	28 0 0	56 0 0
Wheal Grenville a	19 0	42 5 0	802 15 0
do b	19 0	42 10 0	807 10 0
do No. 2	5 0	21 7 6	106 17 6
Dolcoath No. 1	14 0	41 10 0	581 0 0
do No. 1a	13 0	41 15 0	542 15 0
do No. 1b	13 0	42 0 0	546 0 0
Tincroft	16 0	38 2 6	610 0 0
do	15 0	38 5 0	573 15 0
do	3 0	31 10 0	94 10 0
South Frances No. 1	13 0	40 5 0	523 5 0
do No. 1a	12 0	40 0 0	480 0 0
East Pool No. 1	18 0	37 0 0	666 0 0
do No. 2	2 0	18 15 0	37 10 0
Phoenix United No. 1	17 0	40 5 0	684 5 0
do No. 2	3 0	30 0 0	90 0 0
West Frances	16 0	40 0 0	640 0 0
Killifreth	16 0	39 7 6	630 0 0
Wheal Bassett	12 0	42 2 6	505 10 0
West Kitty	12 0	43 2 6	517 10 0
Wheal Agar	10 0	37 15 0	377 10 0
South Condurrow	8 0	42 15 0	350 0 0
Wheal Kitty	4 10	42 17 6	192 18 9

304 10 £11,959 1 3  
Average price per ton £39 5s. 6d.

AVERAGE PRICES PER TON.			
March 13	£40 8 11	May 8	£42 0 8
March 28	41 15 6	May 22	41 0 0
April 10	41 12 8	June 5	40 0 4
April 24	40 12 3	June 19	39 5 6

THE exports of iron ore from the chief ports of Spain for the first three months of this year amounted to 1,157,210 tons, compared with 1,198,936 tons in 1893. There was thus a decrease of 41,726 tons, the increases of 13,000 tons at Salta Caballo and of 5000 tons at Decido being more than counterbalanced by the decrease at Bilbao.

## COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

### St. John del Rey Mining Company (Limited).

THE 63rd annual report of the directors of the above company for the year ending in London 31st May, 1894, states:—During the 12 months under review the new surface works have, in the main, been completed. The works consist of crushing mills, containing stonebreakers and stamps, adequate to the treatment of between 5000 and 6000 tons of mineral monthly; with straking floors, extending over an acre of ground to catch the concentrates; and amalgamation barrels and settlers to extract the bullion from the concentrates. The whole of the reduction works have been covered in with galvanised iron roofing. The mineral is brought up to the mills in cars along the adit and then up an incline tramway 505 feet long, rising 80 feet vertically. The power employed is an endless chain, worked by pulleys from the transmission machinery. This machinery, designed by Mr. Chalmers, also works the stonebreakers, the mills, and the amalgamation plant. The pitwork in the C shaft is completed—the hydraulic engine at the junction of the shafts and adit, for actuating the plungers, is in position; and everything prepared for tapping and pumping out the water accumulated in the old excavations. The length of lode opened out in the Timber (or No. 7) level was, on the 28th February, 581 feet. Two crosscuts have shown the lode to be of a width respectively of 48 feet and 100 feet; and, although in the latter crosscut the mineral is of a mixed character, and much of it poor, the average gold contents of the whole is very satisfactory. The Tram level (or No. 8) was, at the same date, 402 feet long, and will have to be extended about another 180 feet. The two crosscuts are respectively 36 feet and 72 feet in width, the mineral on the whole being more compact, and of a higher quality than in the Timber level. During the year a second winze has been sunk, connecting the two levels; and the mineral extracted from the levels, crosscuts, and winzes, since meeting the lodes, amounting to 16,988 tons, has been crushed in the Old Lyons and Illingworth mills, producing £41,518, of an average of 48s. 10d. per ton. The shareholders will appreciate the developments in the Timber and Tram levels if they reflect that the lode, worked subsequent to the fire, averaged only 340 feet of length in horizontal section, with an average width of 50 feet; moreover, the length and breadth, so worked, included a larger percentage of killas than the directors have reason to expect will be met with in the No. 7 and No. 8 levels, when opened out to their full width. The shareholders will remember that on the reconstruction of the company in 1888, the outstanding 7 per Cent. Mortgage Cuibá Bonds, amounting to £27,000, were taken over, repayable on the 31st July, 1894. About £20,000 of these bonds have been renewed for a period of 18 months, leaving £7000 to be provided for. The hindrance and delay in the landing and transport of the machinery and plant during and since the revolt has seriously interfered with and deferred the completion of the new surface works, thus involving increased expenditure and postponing the receipt of adequate gold returns. Not only were the steamers delayed at Bahia on their passage out; but, when they arrived at Rio, the landing was attended with the utmost difficulty and danger; and after landing and passing the machinery through the Custom House, still further delay was caused by the disorganised state of the railway, and it was only with the utmost difficulty, and by aiding the railway company with the services of our own staff and men, that Mr. Chalmers was enabled to get the goods forwarded from the narrow gauge junction to Honório B'calho, our terminus of the branch line. The directors, in consequence of the delay, are to ask for further borrowing powers to put them in a position to pay off the unrenowned portion of the Cuibá Bonas, and to ensure the due payment of the half-yearly mortgage bond interest on the 1st September next. The following resolution will be submitted at the meeting:—Resolved.—"That the directors be, and they are hereby, empowered to borrow a sum or sums of money not exceeding £15,000, on such terms and for such periods as they may determine." The balance of 13,000 shares referred to in the half-yearly report of December, 1893, has been issued, and the financial statement shows funds in hand sufficient to meet the superintendent's drafts and London requirements other than those previously referred to, up to the 30th September, 1894. The year has been one of great anxiety to all concerned in carrying out the operations of the company, and the shareholders are under deep obligation to Messrs. P. S. Nicolson and Co., the company's agents at Rio de Janeiro, for their exertions in landing and forwarding the machinery and plant during the revolt. The attention of the shareholders is specially directed to the superintendent's general remarks; full explanations are there given of the causes of the delay of starting the new mills and surface works. The following was the financial position on the 31st May. In England—cash at bankers and on deposit, after providing for drafts to 30th September, £3000; London expenses and stores to be shipped, £3000; interest 1st and 31st July, £3500; sold from 5th May to 5th July, £5000; liabilities in Brazil, £15,485 5s. 5d. Mr. Tendon retires from the board by rotation; but, being eligible, offers himself for re-election. The balance-sheet shows a revenue of £532,739 15s., and a balance over expenditure of £2166 13s. 5d.

### American Belle Mines (Limited).

The report of the directors for the 12 months ending 31st December, 1893, states: The revenue account shows a balance of expenditure for the year of £3602 18s. 9d. As was announced in the circular of the 30th November, 1893, this company becomes a shareholder in the Silverton Smelting and Mining Company to the extent of about £4000, £2000 of which was paid in cash on the 19th April, 1894, and £2000 is payable in ore. The directors draw attention to the following extracts from the report of Mr. Harvey, the mine superintendent:—"With a pyritic smelter in close proximity to the mine, reducing the cost of transportation on the ores, coupled with a more favourable smelting charge, much better results should be obtained than has hitherto been done." "Under these improved conditions I see no reason why the mine should not yet be made a profitable enterprise for the shareholders." Under date May 17th Mr. Harvey reports:—"No. 4 level. No. 3 west cross cut, Prospect drift. We have since met with ore in the roof of drift from 1 foot to 2 feet wide, which assays—copper, 8 per cent.; silver, 9 ounces per ton; gold, 1-10th ounce per ton. From the appearance and character of the ore met with, we are sanguine that we are in close proximity to the north ore body."

### The New Guston Company (Limited).

The directors' report for year ending 31st December, 1893, states:—The accounts show on revenue account a balance carried forward of £1794 18s. 8d. The amount standing to the credit of capital account on 1st January, 1893, was £17,405 9s. 10d. Deduct further expenditure during year 1893, £9722 9s. 6d. Amount standing to credit capital account 31st December, 1893,



£7683 0s. 4d. The result is held against losses are the usual negotiable securities of the Stock Exchange, and an ample margin is maintained to cover any risk of depreciation. The ore raised and sold to various smelters amounted to 7820 tons, which realised £27,469 2s. 1d., or an average of £3 15s. 6d. against an average of £3 11s. 6d. per ton of 2000 lbs realised in the previous year. The average mine cost per ton was £3 11s. 2d., against £2 13s. 8d. incurred in the previous year. On the 1st day of January, 1893, the price of silver was \$0.82 per ounce. On the 31st December, 1893, it had fallen to \$0.68 per ounce. The tonnage and average sale value of the ore raised, as well as the amount of dividends paid since the formation of the company is as follows:—1888: Ore raised, 315 tons; average sale value per ton, £75 1s. 10d.; average mine cost per ton, £11 1s. 10d.; amount of dividends paid, £18,874 12s. 1889: 2882 tons; £27 2s.; cost, £6 14s. 2d.; £37,500, dividends, 1890: 4469 tons; £22 12s. 6d.; cost, £6 12s. 8d.; £65,000, dividends, 1891: 11,723 tons; £14 11s.; cost, £2 13s. 8d.; £88,000, dividends, 1892: 14,921 tons; £3 11s. 6d.; cost, £2 13s. 8d.; £30,250, dividends, 1893: 7280 tons; £3 15s. 6d.; cost, £3 11s. 2d.; total, 40,960; average sale value per ton, £11 0s. 8d.; average mine cost per ton, £3 19s. 9d.; total amount of dividends paid, £239,624 12s. The wide variation in the tonnage value of the ores raised and sold is due partly to the decline in the price of silver, but mainly to change from very high to very low grade ore, the latter especially for the year 1891. Mr. Crowther has twice visited the mines since the date of the last general meeting. As the directors found that Mr. Crowther would be in England at the end of June, they considered it would be more satisfactory to the shareholders if the general meeting were deferred until his arrival, so that he might enter into full particulars of his visit. Instead of contributing to the Silverton Smelting Company the sum of £2000 in cash and £2000 more, as stated in the circular of the 30th November last, it has been found expedient to pay the company the full sum of £4000 in cash. The severity of the weather during the late winter delayed the erection of the smelter. This work is nearing completion, and cable advices of starting smelting operations are daily expected. The mine superintendent, Mr. Harvey, in his report appended to that of the directors, states:—"In the light of our present knowledge, I see no reason, as depth is attained from the ninth level, why the very favourable conditions for ore which prevailed above the seventh level should not continue, and the mine again be brought back to a measure of prosperity," also:—"The outlook is encouraging, the ore tonnage available for next shipping season being greater, probably, than it has ever been before in the history of the mine." The directors congratulate the shareholders on the improvement in the lode, which has occurred from the ninth to eleventh level. It is anticipated that the crosscut at the twelfth level will intersect the lode early in August.

#### The Western Silver Mining Company. (No Liability.)

The report of the directors for the half-year ending 31st March, 1894, submitted to the shareholders at the 12th half-yearly meeting of the company, held at Launceston, Tasmania, on Friday, May 18th, 1894, says:—"The work at the mine during the half-year has been very satisfactory. The general mining manager's report will fully show what has been done. The only thing to be regretted is the serious fall in the value of silver, which, however, is now improving in price. Lead, also, has depreciated in value. As a consequence, the earlier shipments failed to realise the price expected. The reduced value of the ore has not prevented the payment of a fair dividend every month since the first dividend was declared in November last. Five dividends of 1s. each, amounting to £15,000, have been paid, and a sum of £2250 equal to 15 per cent. of the total amount of these dividends has been placed on deposit, as the nucleus of a reserve fund. This has been done out of the advances drawn against shipments, being about 80 per cent. of the valuations, as final returns had not been received of any parcels at the close of the half-year. The whole of the half-year's production (4040 tons) has been shipped to Europe, with the exception of three small parcels of kaolin ore, which were sold at the mine. Although the time for taking over the concentrating plant and paying the final amount due thereon has expired, this has not yet been done. The reason for this is that, though the results obtained had been fairly satisfactory, it was believed they could be further improved upon. Representations to this effect having been made to the agents of the Lübhig Company (Messrs. W. and J. Lempriere, of Melbourne), these gentlemen at once acceded to the request of the directors to endeavour to bring about such improvements, and the necessary additions and alterations are now in progress, and have already had a marked beneficial result. There can be no doubt that, but for the Lübhig plant, the results of the half-year would not have been nearly so good as they are. There still remain, at close of this half-year, about 1700 tons of second-class ore at grass of the heap existing at the end of the previous half-year. The balance sheet shows a revenue of £97,613 3s. 6d. and a balance of £48,457 3s. 10d. The total cost of mining, including all mining, timbering, mine development, and merchants' bills, is 17s. 4½d. per ton of ore mined. The gross cost of mining, concentrating, bagging, and delivering the marketable ore is as follows:—Stopping and raising, 13s. 6½d.; driving levels, sinking shafts, &c., 3s. 10d.; concentrating second grade ore, bags and bagging up marketable ore, 7s. Gross cost per ton of ore mined £1 4s. 4½d.

#### The Blue Spur and Gabriel's Gully Consolidated Gold Company (Limited).

The report of the directors for the 12 months ending 28th February, 1894, states: The accounts arranged according to the agreement with the banks dated 20th December, 1890, stand as follows:—During the 12 months, 2195 ounces 18 dwts. 14 grains of gold have been won from the mine and sold for £8582 5s. 5d.; the Fidelity and Ireland tributes have produced £160 14s. 6d.; water rent has yielded £106 2s. 6d.; interest on deposits, £81 1s. 11d.; transfer and office fees, £3 5s. 0d. Total, £8993 9s. 4d. The working expenses have amounted to £6474 6s., leaving a gross profit of £2519 3s. 4d. From this has been paid—Interest on mortgage, £1074 12s. 6d.; dividends on preference shares, £482 2s. 4d.; payment to banks in reduction of mortgage, £962 8s. 6d. Total, £2519 3s. 4d. The balance of £1037 11s. 6d. required to make up the £2000 payable to the banks under the agreement has been taken from the fixed deposit. At the end of the year the amount still due to pay the cumulative dividend on the Preference shares was £897 10s. 4d., being balance for the year ending 28th February, 1893, £179 12s. 3d.; for the whole year ending 28th February, 1894, £717 18s. 1d. Total, £897 10s. 4d. Of the above, £179 12s. 3d. has been paid since 28th February last, from the receipts of the current year which are such as will justify the directors in recommending also the payment of the £717 18s. 1d. if the gold won up to date of meeting continues at an undiminished rate. On the 14th December last the directors posted to the shareholders an extract from a letter of Mr. Howard Jackson, dated 31st October, which gave a clear account of an accident to the tail drain which had occurred on the 4th of that month, and prevented the working of the best faces of the mine, thus confining the output of gold to one face

only of the three worked. Subsequent reports showed that this difficulty was not finally removed till the 26th January last—although the general manager reported "clear" early in the month, the sluicing plant had to be replaced, and he only got on to the three faces on that day. He estimates that the accident which caused this long delay in the full working of the mine—i.e., from 4th October to 26th January, entailed a loss of £2000 on the working of the year, and, therefore, but for this accident the accounts for the year would have shown about £2000 better result. The amount of gold won from 2nd January to 28th February—viz., 519 ounces 1 dwt. 18 grains, to which one face contributed only from 28th January to 28th February, supports Mr. H. Jackson's calculation very strongly, and encourages hope for the future. From 1st March to 5th May of the current year 540 ounces were won, showing that the workings are getting into cement of the better quality so long expected. Extracts from Mr. H. Jackson's recent report of 20th March last appended to the report show very clearly the general position of the mine, the value of the stuff now being worked, and the cost of working it. The plan of the mine issued with last year's report will enable the shareholders to understand these extracts. The directors have not drawn any fees during the year, as they are not able to announce any dividend on the ordinary shares. If in future years the mine becomes more productive they may ask for arrears for the past year.

#### The Lisbon-Berlyn Company.

The following is the directors' report to be presented at the second ordinary general meeting:—"The board would draw attention of shareholders to the fact that the London accounts embrace a period from the 26th October, 1892, to the 31st May, 1894, and the Transvaal accounts from the 26th October, 1892, to the 31st March 1894—viz. 19 months and 17 months respectively. The board considered it desirable to delay the convening of the meeting until such time as they would be in a position to lay before shareholders the first results obtained by the cyanide process. To account for the unavoidable delay that occurred in starting the works, it may be as well to reiterate what was stated in the directors' report on the 18th January last:—"That a delay of some months should have occurred in the shipment of the cyanide plant is to be regretted, but it was not until the end of April, after lengthened negotiations, that terms were submitted by the African Gold Recovery Company which your directors, in the future interests of this company, felt themselves justified in agreeing to. Then, and not until then, was it possible to arrange for the construction of the plant, which was shipped early in August, and had arrived at the fields by December; and it will be seen from the manager's report that every effort is being made to expedite its erection, with the assistance of experts of the African Gold Recovery Company, and that the manager is of opinion that by the end of February the cyanide treatment of the tailings will commence." It was not, however, until a month later that the manager was able to start the cyanide treatment of tailings. In judging the results received from the fields for the months of April and May, shareholders should bear in mind that for the first few months the treatment of new ores or tailings by the cyanide process is of an experimental nature, and, therefore, of necessity is rarely so satisfactory as the treatment of the same ores after the experimental stage has passed. The main point to be considered is the percentage of gold that can be extracted by the process, and looking to the fact that the first two months' treatment shows a recovery of about 90 per cent. of the assay value of the tailings, your directors consider the trial highly satisfactory. The results obtained upon the plates are no better and no worse than could be expected from the very refractory nature of the ore, and it was the knowledge of the difficulty of treatment of the Frankfort ore by the ordinary milling that induced your directors to adopt the cyanide process. So assured are the directors of this difficulty, that they would strongly urge shareholders not to take into consideration the results obtained by milling, but rather to look upon the ordinary milling as a means of obtaining tailings for treatment by cyanide, and any gold recovered upon the plates as an offset simply against the cost of mining, carriage, and milling. To demonstrate this, it is only necessary to state that during the 18 months previous to the starting of the treatment by the cyanide process, the total amount of gold recovered from the Frankfort Farm, amounted in value only to £7550, or, say, at the rate of £420 per month. Whereas, the returns for the last two months have realised at the rate of £2000 per month. The next matter for the consideration of shareholders is that of the amount of ore to be obtained on the Farm, and to prove the abundance of ore it is unnecessary to say more than that the manager, in his mining, is over two years in advance of his milling, and that the extent of the reefs covers some miles of ground. Although owing to pressure of work, and the necessity of the manager concentrating all his energies upon the Frankfort Farm, no regular and serious prospecting operations have been commenced on the Lisbon and Berlyn farms, other than those carried on by the diggers, it will be interesting and satisfactory to shareholders to know that these farms are now self-supporting.

#### Emma Company.

An extraordinary general meeting of this company will be held at the Cannon-street Hotel, Cannon-street, in the City of London, on Thursday next, to consider the present position of the company and certain proposals which have been made by Mr. Woodrow for the future working of the Grizzly Mine, and for the general business of the company, and to pass such resolutions as may be deemed advisable. Proposals:—1. To lease the Grizzly Mine for 14 months at 20 per cent. royalty (usual terms) with option to purchase for \$30,000. 2. To lease for 3 years, 20 per cent. royalty, no option, and to drive 100 feet per annum on lower tunnel. 3. To work the mine at my own expense, assuming any and all losses for one-half of the net profits for 3 years. On account of the limited time for the shipment of ore, the directors have thought it advisable to call this meeting at once, without waiting for a detailed report of the work done by the tributaries (two men) during the period of their lease, which expires on the 30th instant. Mr. Woodrow has reported to the board that he believes they have taken out about 150 tons of ore, but he cannot give the exact amount until the ore is free from moisture and shipped to market, which cannot take place until the beginning of next month.

#### Frontino and Bolivia Gold Mining Company.

The directors have received advices from the mine, dated 23rd April and 8th May; also a letter from Messrs. Restrepo, dated 12th April. The statement for the month of April is as follows:—3039 tons produced—bullion, 2967 ounces; tributaries' gold produced—bullion, 134 ounces; total, 3101 ounces. Also 63,053 lbs. of sulphurets, valued at £886 14s. 6d. Estimated value of the gold and sulphurets, £7516 4s. 1d.; cost at the mines, Medellín, and in London, £5286 17s.; estimated excess of returns, £2229 7s. 1d. Mr. Eustice being absent at Medellín on the business of the company, a report on the mines has been forwarded by the mine agents in charge.

#### Le Champ d'Or (French) Gold Mining Company (Limited).

The accounts for the year to August 31, 1893, show a total revenue of £27,463, of which £25,125 was derived from the gold

produced by the mill, and there was a net loss for the period of £28,802. No crushing operations were in progress for six out of the 12 months. The report shows that during September and October last work was carried on at a loss, but that since then the quartz milled has shown a constantly increasing profit. A substantial addition to the profits has been made by the treatment of tailings from January to May last.

The following circular has been issued by the secretary to shareholders in the MAY DEEP LEVEL GOLD MINING COMPANY (LIMITED):—"I am instructed to advise you that, on further development, No. 6 reef has proved to be a much lower grade than heretofore. My board has, therefore, reluctantly decided to cease raising operations for the present, and to use all the funds available to push on development at a few points towards the western section of the property, where the reefs have proved to be good in the outcrop company's ground. It is quite apparent that the company requires further stamping power to treat the low grade ore at present available to make the mine a paying concern. With a 50 head mill and cyanide plant No. 4 reef could be worked at a profit, very little development being required to open up 80,000 tons of ore on this reef. As soon as a suitable off-r is received to place the company in a position to pay off its liabilities and to carry out the above objects my directors will convene a meeting of shareholders to consider same.

The AUSTRALIAN GOLD RECOVERY COMPANY, LIMITED, (MacArthur-Forrest process) announces that contracts have been entered into with the Golden Mountain Gold Mining Company of Victoria for treatment of its ores, with the Croydon Quartz Crushing and Gold Mining Company (Limited) and the Pioneer Gold Mining Company for treatment of their tailings, and that the Government of South Australia has fitted up a pioneer plant, and has acquired a license from the company to use the process. According to cable advices, the plant for the Croydon Quartz Company is completed, and the Pioneer Company has already commenced to work. The following results are also given by the Virginia Gold Mining Company:—"From first partial clean-up 54 ounces 14 dwts. from 84 tons, and from second clean up 151 ounces from 200 tons."

At the annual general meeting of the MODDERFONTEIN GOLD MINING COMPANY (LIMITED) the following scheme of reconstruction was agreed to:—Reduce the capital to £100,000, giving shareholders one share for two, the capital to be increased to £200,000 by the creation of 100,000 new shares; 75,000 offered to shareholders at par for a period of 45 days, and certain persons to receive the option of 25,000 reserve shares for twelve months at par.

The ENGLISH AND AUSTRALIAN COFFEE COMPANY (LIMITED) notifies that the half-yearly coupons due July 2 on its 6 per cent. debenture bonds will be paid, on and after that date, at the London and South-Western Banking Company (Limited), Fenchurch-street, E.C.

The directors of the NEW CHIMES GOLD have declared a dividend of 10 per cent., payable to shareholders registered before 1st July. The share transfer books of the company will be closed from 1st to 14th July inclusive.

A dividend of 10 per cent. has been declared by the NEW CHIMES GOLD MINING COMPANY (LIMITED), payable to shareholders registered before July 1.

The EASTLEIGH MINES (LIMITED), of Pretoria, South African Republic, has opened a London office, at 14, Sherborne-lane, E.C., with Messrs. H. B. Marshall and G. H. Raw as the members of the London committee, and Mr. John Morison as London secretary.

The directors of BAYLEY'S REWARD CLAIM have declared a dividend for June of 4d. per share, payable 25th inst.

It is announced that the directors of the LANGLAAGTE ESTATE AND GOLD MINING COMPANY (LIMITED) propose to declare another dividend of 12½ per cent. for the quarter ending June 30.

MESSRS. J. FISHER, P. Cant, and E. Clark, sold to the London Bank of Australia (Limited), on April 18th, two solid bars of gold, the product of the Gertrude Reward claim, Leichhardt, Cloncurry district, says the North Queensland Register. The smaller one, weighing 230 ounces 10 dwts., realised, at £4 1s. 5d. the ounce, £921 0s. 10½d., and the other 332 ounces 15 dwts., at £4 2s. 5d. per ounce, £1548 10s. 9d. The slightly lesser value of the former is accounted for by the fact that in it were 76 ounces of gold, obtained from 17 cwt. of dolly tailings crushed at the Soldier's Cap battery near Cloncurry, by which a trace of the baser metal became saved. These tailings represented the residue of the stone from which over 1100 ounces had been hand crushed, and the gold banked by Messrs. Fisher and party with the exception of the proportion of gold got from the tailings, has, with some 180 ounces sold during the period in Cloncurry, all been taken out of the mine since November, and came out of an ordinary drive, about 6 feet by 3 feet, and 20 feet long, a piece of good fortune which does not fall to the lot of many outside prospectors. The mine, which is held as an ordinary reward claim, 700 feet by 400 feet, is situated in rough country and is about 85 miles from Cloncurry and within 1½ miles of the Leichhardt River, where water is always obtainable. The Gertrude occupies the point of a range which ends abruptly some 300 feet, nearly sheer, above the creek which runs round the base.

We learn that Mr. A. G. Charleton, mining engineer, has been awarded by the Federated Institution of Mining Engineers a prize of books for his paper on "The Choice of Coarse and Fine Crushing Machinery and Processes of Ore Treatment," contributed to the Transactions of that society, and read at the meetings of the body.

The following are the gold statistics for the Bendigo and Ballarat districts for the fortnight ended the 9th inst.:—Bendigo—Total yield, 4800 ounces; dividends declared, £3175. Ballarat—Total yield, 7554 ounces; dividends declared, £6400.

On the 17th May the R.M.S. Dee sailed from Demerara with 7757 ounces 8 dwts. 17 grains, to the value of £138,075 8s., an increase over the previous shipment of 5731 ounces 16 dwts. 11 grains, to the value of £102,491 8s. With this addition the total output for the year amounts to 42,413 ounces 2 dwts. 4 grains, to the value of \$737,904 88.

One of the largest nuggets in the history of mining is reported to have been hoisted out of the Smuggler Mine, at Aspen, Colorado. Workmen encountered a huge body of ore, and in digging around it found that it was a monster nugget, and after considerable work got it to the surface intact. The chunk weighed 3300 lbs., and contained silver to the value of \$25,000. It is pronounced to be the largest silver nugget ever known, and, what is more peculiar, it is almost pure. This beats the record made in the Gibson a few years ago, when a nugget weighing 300 lbs. was removed.

The Star of the East and New Chums Mines, on the Maribou field, are keeping up their reputation for rich rock. Recent crushings gave New Chums 202 tons for 640 ounces, and the Star of the East 100 tons for 305 ounces, 80 tons for 220 ounces, and 40 tons for 160 ounces.



## THE LAGUNAS NITRATE COMPANY (LIMITED).

In consequence of the great number of applications for Shares, the Directors of the above Company have decided to CLOSE the Subscription List at NOON TO DAY (SATURDAY) for the United Kingdom. The List will remain OPEN for Applications from the Continent until MONDAY EVENING.

## THE LAGUNAS NITRATE CO. (LIMITED).

INCORPORATED UNDER THE COMPANIES ACTS, 1862-1890.

SHARE CAPITAL, £900,000.

Divided into 180,000 Shares of £5 each, of which 60,000 Shares are reserved for the Vendors.

Issue of £600,000 Share Capital.

£1 per Share on Application.

£2 per Share on Allotment.

£2 per Share on 31st August, 1894.

Shareholders desiring to have Share-warrants to Bearer may pay up in full on Allotment, and Bearer Certificates will, in due course, be issued to them on written application, and on payment of the Government Stamp Duty, and a fee not exceeding 5s. for each Share-warrant.

## DIRECTORS.

Colonel J. T. North, Avery Hill, Eltham, Chairman.

Edward Edmondson, Esq., (Messrs. Gunston, Sons and Co.), Liverpool.

George Fleming, Esq., (Messrs. Robinson, Fleming, and Co.), London.

Robert Harvey, Esq., No. 1, Palace Gate, W.

Maurice Jewell, Esq., Hall Place, Bexley, Kent.

Richard Robertson Lockett, Esq., (Messrs. W. and J. Lockett), Liverpool.

T. Douglas Murray, Esq., Clewer Lodge, Windsor.

## BANKERS.

The Bank of Tarapacá and London (Limited), No. 43, Threadneedle Street, London, E.C.

## SOLICITORS.

Messrs. Budd, Johnsons and Jecks, No. 24, Austin Friars, London, E.C.

## BROKERS.

Messrs. Montagu, Oppenheim & Co., No. 22, Austin Friars, London, E.C.

Mr. Welbore Stuart Ellis, No. 20, Threadneedle Street, London, E.C.

## AUDITORS.

Messrs. J. O. Chadwick & Son, No. 95, Finsbury Pavement, London, E.C.

## AGENTS IN CHILE.

Messrs. North and Jewell, Iquique.

## MERCANTILE AGENTS IN ENGLAND.

Messrs. W. & J. Lockett, 12, King Street, Liverpool, and Nos. 93 & 94, Gracechurch Street, London, E.C.

## SECRETARY.

J. H. Gretton.

## OFFICES OF THE COMPANY.

3, Gracechurch Street, London, E.C.

## PROSPECTUS.

This Company has been formed to acquire a portion (being about 200 estacas of 40,000 square varas (Spanish yards) each in extent) of the well-known nitrate grounds of The Lagunas Syndicate (Limited), and which are believed to contain the richest deposit of caliche in the Province of Tarapacá, Republic of Chile, together with the Oficina recently erected thereon.

This property is now in direct communication with the Port of Iquique, over the lines of the Nitrate Railways Company (Limited), and the Lagunas Syndicate has, at a considerable cost, extracted a large quantity of caliche, and erected on the grounds to be acquired by the Company an Oficina of the most improved modern construction, capable of manufacturing 300,000 quintals of nitrate of soda per month.

The Syndicate has also obtained and brought in pipes into Lagunas a supply of water, and the Company will have the right of using one-third of the surplus water of the Syndicate after supplying, to the extent of 3000 gallons a day, the prior requirements of The Nitrate Railways Company (Limited), the Company contributing one-third of the cost of maintaining the water supply, and so in proportion for any larger quantity taken.

The Syndicate was formed in 1889 with a view of acquiring and developing the Lagunas property, and its original Share Capital represented only the prime cost of the Grounds, at a time when no railway communication with the Coast existed. It is now selling (at a profit) to this Company a portion only of its property, with an Oficina in complete working order, and it is felt, especially having regard to the increased demand for Nitrate of Soda, that the time has now arrived when the first Oficina erected by the Syndicate, and the Grounds which it is selling to this Company, should be acquired and dealt with as a working Nitrate-producing Establishment on a scale and with a Capital more approximately representing the value of this part of the undertaking of the Lagunas Syndicate.

The following table shows the decennial progress in the exports of Nitrate from the West Coast of South America:—

1830	...	...	...	...	800 tons.
1840	...	...	...	...	10,000 "
1850	...	...	...	...	23,000 "
1860	...	...	...	...	55,000 "
1870	...	...	...	...	136,000 "
1880	...	...	...	...	225,000 "
1890	...	...	...	...	1,050,000 "

The business will be taken over as a going concern as on the 30th of June, 1894. The Company will have the benefit of the contracts entered into by the Syndicate previously to the 30th of June, 1894, for the supply of Nitrate, and the Company will be bound by, and will have the benefit of, the Agreements entered into by the Syndicate with the Nitrate Railways Company (Limited) for the carriage of Nitrate and goods to and from Iquique; with Messrs. North and Jewell, as Port Agents in Iquique; and with Messrs. W. and J. Lockett, as Mercantile Agents in England; and will also take over the services of the whole or greater part of the Syndicate in connection with the Oficina, which is now already producing Nitrate on a very important scale.

The Directors believe that owing to the valuable nature of the Caliche deposit, and the facilities for manufacture which will be possessed by the Company, the profits from the production of Nitrate will be very large, and that the manufacture of iodine will also prove a source of profit, and they have reason to believe that the dividends which this Company will be able to pay will be very large. In their opinion the Company is acquiring the property at a favourable price, and on conditions most satisfactory to the new Company.

The Directors of this Company are Directors of The Lagunas Syndicate (Limited), and hold a considerable portion of the Shares of that Syndicate, and the purchase price has been fixed by them at £850,000, of which £300,000 will be paid in fully paid-up Shares of this Company and the balance in cash, and the remaining £550,000 of the Capital, after paying all expenses in connection with the formation of the Company and the acquisition of its property (all which expenses are to be borne by the Company), will, in the directors' opinion, supply sufficient working Capital for carrying on the Company's business.

The only Agreement entered into is one dated the 18th day of June, 1894, and is made between The Lagunas Syndicate (Limited) of the one part, and this Company of the other part, and which Agreement provides, not only for the above-mentioned Sale, but also for the Company acquiring the benefit of and being bound by the

various Agreements entered into by The Lagunas Syndicate (Limited) with The Nitrate Railways Company (Limited), Messrs. North and Jewell, and Messrs. W. and J. Lockett, so far as they are applicable to the Nitrate Grounds, and Oficina to be acquired by this Company, and provides also for this Company taking over the services of such of the existing Staff of The Lagunas Syndicate (Limited) as may be willing to enter into the employ of this Company, and to this Company being bound by the provisions of the existing Agreements with the Staff.

A copy of the Agreement of the 18th day of June, 1894, together with a print of the Memorandum and Articles of Association, can be seen at the Offices of the Solicitors of the Company.

It is intended in due course to apply to the Committee of the Stock Exchange for a quotation of the Shares in the Official List.

Application for Shares should be made on the accompanying form, and sent with the deposit to the Company's Bankers. In all cases where no allotment is made the deposit will be returned to the applicant in full, and when the number of Shares allotted is less than the number applied for, the surplus will be credited in reduction of the further amount payable on the Shares allotted, and any balance then remaining will be returned to the allottee.

Prospectuses and Forms of Application may be obtained from the Brokers to the Company, and also at the Company's Bankers, and at the Offices of the Company.

LONDON, 18th June, 1894.

## THE EDITOR'S LETTER BOX.

\* We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

## HYDRAULIC MINING IN COLOMBIA.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—In your issue of June 24th, 1893, you were good enough to publish a communication from me headed, "Why Some Hydraulic Gold Mines Fall Short of Their Estimates." In that letter I alleged that under the usual system of working hydraulic mines in Colombia the large volumes and pressures of water frequently employed rendered it impossible, under the conditions specified, to avoid the irretrievable loss of fine gold dust which, intermixed with an enormous preponderance of debris of all forms and sizes, is carried down by the water and escapes from the outlet of the sluices with the tailings, and I gave this as quite a sufficient reason in itself, as apart from some others referred to, for accounting for the wide discrepancies so frequently existing between the gold which *bona fide* preliminary trials and tests might prove to be present, *in situ*, in the gravel banks (the entire quantity being more or less in the average ratio of about 2 to 3 troy grains of gold in weight to every ton of gravel) and that subsequently obtained in actual working practice. I was rather expecting, I may say hoping, that some one or other from amongst the managers or other employees of hydraulic gravel mines in Colombia might have been so far interested in this matter as to have either challenged or rectified my assertions, if not substantially correct, or if wholly or even partially admitting their accuracy, to have entered into the discussion of some gold-saving method, in conjunction with the employment of maximum volumes of water, which, although it might not be a perfect process, would, at all events, tend to a reduction of the large existing loss of gold.

Up to the present moment (with the exception of a communication which appeared in *The Mining Journal* of July 1st from Mr. Spargo, of Liverpool, and which, although not specifically dealing with Colombian mines, I will refer to presently) I have not had the pleasure of seeing a single published remark on the subject. One scarcely likes to think that this reticence is to be attributed to indifference; or that we are to presume from it that the existing system which permits about one-half—a little more or a little less—of the entire gold contents to escape from the tail of the sluice, or to otherwise vanish in some unaccountable or accountable manner during the process of washing, is sufficiently perfect. Mr. Spargo says:—"I have no doubt that there is great waste of fine gold under the present mode of hydraulic mining, and under most of the circumstances mentioned by Mr. Gledhill, but I hardly think that this rush of water through well-graded and riffled sluices of adequate length would allow any appreciable quantity of gold to escape that could or would be otherwise saved."

The latter statement is precisely the question at issue, and the two points I wish particularly to emphasise are—first, that gold is admittedly and unquestionably wasted by the hydraulic process, according to some practical authorities; and in some instances, in Colombia to an extent ranging from 40 to 50 per cent. of the entire amount originally present in the gravel; and, secondly, whether some beneficial modification of the system, or some economical method not now in general operation can or cannot be employed for minimising that loss, especially as the saving of a moderate percentage of it would, in not a few cases, not only make all the difference between a paying and a non-paying mine, but in others would proportionally increase the profits of that small minority able to distribute more than a very attenuated gilding of interest over their imposing scrip area.

Assuming that the suggestion of employing multiplied sluices and openings then thrown out not to be convenient or practicable in all cases, might it not at least be expedient to put into effective practice at these Colombian mines, where suitable physical conditions exist, such already known gold-saving methods as have been experimentally and satisfactorily tested at hydraulic mines in other countries—notably in California? Amongst these may be mentioned the under-current, which is simply a grating efficacious in proportion to its superficial area, and to the degree of attention the complete arrangement receives, placed at a convenient point in the bottom of, and following the same grade as the main sluice, and vertically beneath which grate or screen a second sluice commences, usually constructed of much greater width, but with less grade than main sluice, for receiving the screened or sifted gravel falling through the grate by the flow of the water, and carrying the escaping particles of gold with it. This minutely divided gold, favoured by the enlarged area of the undercurrent sluice, and the diminished volume and velocity of the water, has thus a better opportunity of depositing itself from the correspondingly reduced bulk of tailings travelling at lower speed along it.

The coarser debris washed over the grate, and passing out of the tail end of the main sluice, is still liable, however, to carry with it more or less fine gold, accordingly as its clayey gold adhering ingredients may have been previously broken up *in transitu*. In fact, quite as much depends upon proper attention to this detail in alluvial gold washing as upon any other. When the configuration of the ground is suitable, a second undercurrent may be fixed under the first to receive the re-screened tailings from the latter, and so on in vertical series, a greater or lesser percentage of gold being collected, as before stated, according to the extent and perfection, and to the degree of care and watchfulness the undercurrents receive; their aim and object

being, in fact, analogous to the saving of slimes and similar mineralised products from the tailings from vein mines during concentration processes, and which it would be considered culpable apathy to neglect. Simple, however, as the undercurrent is in its construction and operation, it is the exception to find any Colombian mine employing it at all—in some cases, no doubt, for want of proper natural facilities for fixing it, although in other important and largely capitalised hydraulic mines not using it (or any other special gold-saving appliance beyond the sluice itself) no such reason exists, and I venture to say, and in making this assertion I am confirmed by hydraulic miners in this country of long experience, that there are not at the present time a couple (I might, perhaps, even safely give a less number) of otherwise efficiently mounted mines having an undercurrent, if they possess such a contrivance at all, in any way adapted or proportionate to the immense volumes of water and debris washed almost continuously day and night down their main sluices. It may be for this reason that undercurrents are not universally believed in in Colombia, being, as they are in most cases, mere pretexts, and with good reason, if they invariably saved no more than 50 cents worth of gold, after a six months' run, as I am informed was the case in one particular instance. In that example (the mine has since been taking a long, if not a well-earned, repose) it ought to be explained, however, that the mere effort of fixing that undercurrent was considered to be an endeavour sufficient to bestow upon it the faculty of perpetual automaticity and freedom from any special attention from that day forward. Whether by undercurrents perpetually automatic or otherwise, or whether by greatly prolonged sluices properly attended to where they cannot be adopted, or by whatever other means more or less practicable, surely some system can be attempted for minimising the loss resulting from steadfastly and unswervingly "piping away," month after month, to the time and tune of so much gold carried away and lost, and so correspondingly little divisible profit actually realised.

Meanwhile let us hope that the man and the hour may yet come when the whole of this precious loss will be converted into a veritable and joyful gain, thereby depriving fractions or disappointed shareholders and others of the opportunity of publishing disagreeable and uncomplimentary remarks, or of making critical and unfavourable comparisons between the alluring auriferous estimates sometimes set forth in prospectuses, and the actual subsequent results achieved in weighable gold; for most certainly until the existing loss is reduced, the remunerative success of hydraulic mining can never be satisfactorily or fully assured.—I am, Sir, &c.,

EDWARD GLEDHILL.

Over eight years Manager

Tollma Silver and Gold Mines.

Carolina, Hacienda, Honda, Republic of Colombia, S. America.

May 1st, 1894.

CHAMBER OF COMMERCE.—A meeting of the committee of the Iron and General Metal Trades Section of the Liverpool Chamber of Commerce was held on Monday in the board room of the Chamber. The chair was taken by Mr. E. W. Bindloss.—Exports of Black Plates: Since the last meeting a letter had been written on behalf of the committee to the Board of Trade, thanking the board for their endeavours to furnish the statistics of the exports of black plate in the month of April, but at the same time stating that the figures given were not regarded as accurate. Specimens of steel and iron blackplate, furnished by Messrs. Alexander Sparrow and Co., had been forwarded to the board for the information of the Board of Customs, together with notes as to the countries to which they are exported. It had been recommended that blackplate, together with a description of the purposes for which it is used, should in future be separately enumerated in the official export list of the Customs. The Board of Trade had replied on the 13th June that they were in correspondence with the Commissioners of Customs on the subject, and that they hoped to be in a position shortly to furnish a definite reply. It was suggested by a member of the committee that the Swansea Harbour Trust would be able to furnish the statistics of exports of blackplate from that port, and it was resolved that the trust should be asked for the figures of the first five months of the present year.—Merchandise Marks Act, 1891: The subject of the fraudulent delivery of tinplates of light weight against sales of full weights again engaged the attention of the committee, who had since the last meeting been in correspondence with the Board of Trade on the subject of their powers to prosecute in such cases under section 2 of the Merchandise Marks Act, 1891. The board had sent a copy of their regulations with regard to the prosecution of offenders, and had invited the committee to submit a case in accordance with the rules laid down, and had promised to give the matter their most careful attention. It was decided to ask the board whether they had a representative in Liverpool who could be consulted when any further suspicious cases were reported, and who would be empowered to act promptly in respect of them, as, for instance, to stop plates suspected of being light.—Tinplate Freight Notes: It was represented to the committee that the freight note system practised by the agents of coasting steamers engaged in carrying tinplates from South Wales to Liverpool was loose, and, therefore, unsatisfactory, and it was agreed that representatives of the companies should be invited to join the committee in considering whether it could not be improved.

ELECTROLYTIC CARTRIDGE.—Dr. Ochse's new electrolytic cartridge for shot firing in mines is composed of an ampulla of very thick glass filled with slightly acidulated water, into which penetrate two small platinum electrodes connected with two copper wires. It is placed at the bottom of a mine, which is afterwards rammed in the usual way. The water on passing the electric current is decomposed into oxygen and hydrogen, and these two gases form a detonating mixture which explodes, we understand, at about 400° or 500° C. The cartridge is described by M. Chalon in a recent number of *Le Genie Civil*.

## WEST AUSTRALIAN GOLD FIELDS

FOR SALE, 100 fully paid £1 SHARES in a WEST AUSTRALIAN GOLD FIELD, which has excellent prospects. For price and further particulars apply to "X. A. X." care of MINING JOURNAL, 18, Finch Lane, London, E.C.

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**PACIFIC MINING AGENCY AND TRUST COMPANY.**

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CAPITAL STOCK, £50,000.  
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IRWIN C. STUMP (Chairman), Manager of the Estate of the late  
U.S. Senator Hearst.  
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JACOB H. NEFF, President California Miners' Association.  
P. N. LILIENTHAL, Manager Anglo-California Bank (Limited).  
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D. M. BURNS, Capitalist.  
R. C. CHAMBERS, Manager Ontario Mine, Utah.  
WILLIAM C. RALSTON, Secretary (Secretary California Miners  
Association).  
BANKERS—The ANGLO-CALIFORNIAN BANK (Limited).  
HEAD OFFICE—MILLS BUILDING, SAN FRANCISCO, CAL.

THIS COMPANY sells Mines, Mining Claims, Ditch Properties,  
and Water Rights ON COMMISSION, and will act as Agent and  
Broker for the Sale and Purchase of such Properties.  
It is intended to conduct the Purchase and Sale of Mining Claims,  
Ditch Properties, and Water Rights on the same basis as a real estate  
transaction.

The Company is prohibited by its Articles of Incorporation from  
buying or selling on its own behalf, or except upon commission, or  
as agent or factor for others.

The buyer pays no fees whatever, and there is no incentive to  
advance the price beyond the original figures at which the price and  
commission have been agreed upon with the seller.

It is not intended only to negotiate the sale of an entire property but  
interests in such may be sold or money obtained for development work.

This Company especially solicits the business of making reports  
or examinations for non-resident mine owners on any of their mines  
in the United States, and obtaining special information as to their  
condition and so forth (said reports being confidential).

Those who conduct the business of the Company have had long  
experience in mining operations, and it is their intention to place  
the Company in a position to inspire the confidence of all who seek  
its assistance in its integrity and fair dealing.

We respectfully refer to any Bank in the City of San Francisco  
and to the Anglo-Californian Bank (Limited), London, as to the  
standing of the Board of Directors of this Company.

Descriptions of properties for sale with maps, reports and all  
necessary information, are left on file in the office of the Company.  
Abstracts of such reports with prices of mines will be furnished  
upon application.

California has produced £267,000,000 in gold, and is still producing  
£2,680,000 a year. There are thousands of claims requiring capital  
for development. In other Pacific Coast States and Territories there  
are abundant opportunities for investment in mines of gold, silver,  
copper, lead, coal, and so forth. Information concerning these will  
be furnished by this Company on application.

This Company will also furnish competent engineers, superintendents,  
foremen, miners, millmen, assayers and others connected  
with the mining industry on application, furnishing their references  
and so forth.—Cable Address, "CHAPIN," San Francisco.

**THE BUTE WORKS SUPPLY COMPANY, CARDIFF.**

Telephone: No. 45 (Post Office and National).

Telegrams: Gething, Cardiff.

**WAGONS.**—New to Latest Regulations, 50 with one end  
two Side and two Bottom Doors, Wheels with Wrought Bosses  
large capacity (12 inches longer and 4 inches deeper than usual),  
ready for Lettering. New to Latest Regulations, one end and  
two side doors, sides and ends 3 inch red deals, all inside under-  
frame timbers of English oak; delivery, about 15 per week, com-  
mencing forthwith. 50 End; Tip 10-ton Coal Wagons to New Regu-  
lations, equal to new, prompt delivery.

**LOCOMOTIVES.**—One good second-hand Saddle Tank Loco.  
six wheels coupled, ready for instant work, and cheap for cash or  
three years' purchase—lease. 14 inch cylinders, by Avonside Engine  
Company, now at Cardiff.

**RAILS.**—Bridge, 14 to 120 lbs. per yard; Flange, 10 to 100 lbs.  
per yard; Double Head, 30 to 82 lbs. per yard; and Bull Head, 50 to  
96 lbs. per yard.

**SLEEPERS.**—Wood, Iron, and Steel. A quantity of Metro  
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LONDON: JUNE 23, 1894.

**GOLD MINING IN NEW SOUTH WALES.**

THE Australian colonies are learning that there is a silver  
lining to every cloud, and that if they have suffered from  
the widely-spread commercial and industrial depression  
which has deprived hundreds of hard working men of their  
customary employment, they are likely to gain by the stimulus  
afforded by renewed energy in the search for the precious  
metals. It cannot be denied that of late there has been a gold  
mining revival throughout the whole of the continent, promi-  
nently, of course, in Western Australia, but not insignificantly,  
by any means, in New South Wales. At Wyalong, little more  
than a day's journey from Sydney, where, less than three months  
ago, the population numbered about a score, there are now from  
8000 to 9000 men, women, and children, and a large township  
has sprung up, where last summer revealed only the primeval bush.  
Although an enormous quantity of gold has been dug out of the  
earth, practically the auriferous wealth of New South Wales  
remains untouched. Even the colonists themselves are  
often in ignorance of the treasures lying at their  
very doors. When the crowds of unemployed marched in grim

procession through the streets of Sydney, there were none who  
dreamed that within less than a couple of days' journey from  
the metropolis there were thousands of ounces of gold waiting  
to be extracted from the soft and yielding rock. The inhabitants  
of Australia have been very wasteful in obtaining the gold. On  
every field there are heaps of wash-dirt, or tailings, which have  
become neglected, although containing innumerable ounces of  
the precious metal, generally, however, in such minute forms as  
to need considerable patience and perseverance in the work of  
extraction. The New South Wales Government decided upon  
sending large numbers of the better class of unemployed to some  
of these places, giving them free railway passes and other  
assistance. It was deemed better that these men should be  
employed in "fossicking" for gold in likely districts than in loaf-  
ing about the metropolitan open spaces. The experiment has  
proved a complete success. Then, again, better methods of  
working and extraction have been resorted to; and the most  
perfect appliances are taking the place of the crude,  
clumsy machinery of a more primitive time. In  
more than one locality companies have been formed to  
utilise water power, hitherto running to waste, in the produc-  
tion and application to the mines of electric energy, thereby  
cheapening and increasing the output very materially. As a  
well-known and able mining expert said the other day:—"It is  
true that New South Wales is less indebted to gold mining at  
the early stage than any of the colonies, but, still, it owes a  
great deal to the large production of gold, and in future there  
is a great deal to be done in gold mining in the colony. We  
might go from north to south, from the Victorian to the Queens-  
land border, and throughout the whole width of the coastal  
ranges to the central inland plain, and yet hardly go 20 miles in  
any direction without coming to gold. It may not be worked as  
payable mining at present, and it may be some years before it  
will be, but that payable mines do exist all over New South  
Wales is practically demonstrated." The important discoveries  
at Wyalong have been incidentally referred to. It is a fact  
that but a very short time ago this place was not looked upon  
as a mining district at all, yet at the present moment there  
is a large population there thriving upon the wealth that is  
being produced. Then there is the Mitchell's Creek Mine, near  
Wellington, which has for several years given regular employ-  
ment to over 100 men, and has paid fair dividends to the pro-  
spectors. Within a few miles of Orange, at Lucknow, is, we  
believe, the richest and most important gold mine at present in  
full work in the colony. There are nearly 400 men at work on  
the several properties on the Wentworth gold field, all of whom  
are paid the regular rate of wages, except those, of course, who  
go in for contract work, and who, as a rule, earn more than the  
average rate of pay. Several gold mines are also paying well in  
the Colar district, and yielding regular dividends. Among these  
are the Occidental, the Billagoe, Mount Drysdale, and others.

According to the latest returns, the quantity of gold obtained  
in New South Wales during 1893 was 179,288 ounces, or an  
increase of 22,418 ounces over the yield for 1892, the value of  
the increased output being estimated at £82,107. This yield is  
the largest known in the colony since 1875, when it amounted  
to 230,882 ounces. It may also be mentioned, in this  
connection, that the smallest yield since 1851, when gold was  
first discovered in Australia, was in 1888, when it amounted to  
87,503 ounces. The total output of gold from the opening of  
the gold fields up to the end of last year amounted to 10,709,610  
ounces, valued at £39,853,941 10s. 10d. The quantity of gold  
sent to the Mint in 1893 exceeded that sent in 1892 by 26,838  
ounces. The principal increase was from the western district,  
which produced 4142 ounces over 1892, and the northern district  
1102 ounces over the previous year. The largest increases came  
from the Sofala, Carcoar, Braidwood, Adelong, and Tumbarumba  
divisions, whilst the Mudgee, Lachlan, Southern, Hunter, and  
Macleary, Clarence, and Richmond, showed decreases. The  
number of miners employed in gold mining during 1893 was  
5684 Europeans, and 717 Chinese in alluvial; and 5556 Euro-  
peans in quartz mining, a total of 11,957, an increase of 2038 on  
the previous year. Dividing the quantity of gold won by the  
number of miners, the result obtained is that each miner appears  
to have won 14.99 ounces, or equal to £54 9s. 4d. during the  
year as compared with 17.33 ounces, or £82 18s. per man during  
1892. Contemplating these figures we cannot wonder that the  
colonists are sanguine as to the future.

**MINING OR GAMBLING—WHICH?**

WHENEVER a mining boom occurs those who during  
a previous inflation suffered by virtue of what they  
are pleased to call their innocence are usually to the  
fore with a voice of warning to the guileless public. "Beware  
of mining promoters; have nothing to do with mining" is their  
cry. Sometimes the note of alarm is sounded by those who,  
more experienced than their fellows in "ways that are dark  
and tricks that are"—profitable, took advantage of speculative  
cupidity in days agone, and themselves perpetrated a swindle  
in mining. This is not the name they call it by. In their  
estimation it was a well conducted and highly lucrative opera-  
tion. It is the man who lost his money who takes a sombre  
view of the transaction. Critics we are assured are not invari-  
ably drawn from the ranks of those who have failed in  
Literature and Art, neither comes the warning voice to  
investors always from those who have failed in their  
dealings with mining promotion. The successful pro-  
moter of the past having acquired that respecta-  
bility which wealth confers upon its possessor, and having, not  
without considerable difficulty, cultivated a conscience (not  
necessarily a Nonconformist one) views with horror and amaze-  
ment, possibly not unmixed with jealousy, others treading the  
tricky path, which, in his case, led to fields of financial fertility.  
We admit there is as much, probably more, swindling carried on  
in the name of mining than will be found associated with any



single industry save that of horse-dealing. Why is this? Is it because mining is another form of gambling? That it competes with roulette and horse-racing in providing excitement for those who follow it, and that it sometimes rains down fortune into the lap of the lucky speculator is perfectly true. It does provide excitement, and oftentimes enriches those who legitimately follow it, but it has unfortunately degenerated into gambling among those who do not know a mine from a mule, and whose interest in the industry is confined to operations on the Stock Market. These are the people who become an easy prey to the professional exploiter, and who are the first to cry out that mining is at best but a gamble in the guise of industry. And what they say is true, but they are the people who have made it true. Their interest in mining has been the interest which the punter takes in the tables at Monte Carlo. There the colour for the moment in highest favour is backed. In the Mining Market the most fashionable field is the one to which the "mining public," as it is called, send their money, never thinking whether it is the best field open, but blindly following the fashion in the hope that prices will rise, and that there are folks in the world less astute than themselves who will follow the rush and buy at top prices, permitting them to clear out at a handsome profit.

People imagine this is mining. Mining! As well say the Stock Exchange is a Natural History Museum or a Zoological Gardens. The ordinary mining market operation is little better than staking money at the gaming tables of the Riviera, and not one whit safer than backing horses. But mining as an industry is not to blame for this. The industry itself is one of the most legitimate in the world. It seeks for the hidden treasures of the Earth, wins them in a crude state, and transforms them into a marketable condition. Judgment, experience, and scientific knowledge are indispensable to success, and if the investing (or shall we say speculating?) public would only keep cool heads, they would find mining as safe an investment as any industrial undertaking under the Sun. We are all in a hurry to get rich. Mining is often one of the quickest means to this end. The public realise this, and the wily promoter knows his public. When a miner, who by dint of honest toil, and, possibly, no little privation in strange lands, has discovered a rich mineral deposit—say gold—returns to this country with a view of getting capital to develop his find, the first question he is asked is not "What is it?" but "Where is it?" Again, we say, the promoter knows his public. If the find is adjacent to, or in a fashionable field, he knows there is money in promoting it, whatever may be the result of working it. Glowing reports are easily got, and if the district in which the property is situated is for the moment fashionable, the more glowing they are the more readily are they accepted by people who know nothing of either minerals or mining, and less of the mode in which they severally occur and are carried on. And so mining, through the sheer ignorance of those who dabble in it, ceases to be a pure industrial concern, and develops into a gamble on the share market. The Stock Exchange has its uses, and it would probably be difficult, as the world now wags, to do without it, but mining as an industry has to thank it for but little. It has fostered the gaming spirit which has been the ruin of so many things, industrial and otherwise, and has assisted the public to invest its savings in endless wild-cat schemes. But we have little sympathy with those who cry out when they are hit over a mining swindle. In the majority of instances they have their own cupidity and ignorance to thank for it. It was fondly believed by some amiable enthusiasts that the Mining Section of the London Chamber of Commerce would effectually protect the public of the future from unprincipled operators, whether they were "salters" or promoters; but up to the present it has done little to justify its existence. With its resources it ought to be in a position to advise the public as to the justifiability or otherwise of a "boom," and not leave the note of warning to the biter or the bitten, or permit the word of encouragement to come from those whom it ought to be in a position to advise.

## NOTES AND COMMENTS.

CONSUL STIGAND, writing from Manilla, gives a very interesting account of the gold production of the Philippines, and of the native methods of winning it. It must be confessed, from the evidence he offers us, that we cannot look upon this part of the world as a field likely to largely increase our present resources, or as one likely to prove attractive to the miner, engineer, or capitalist. Whilst we are casting our eyes around upon the many and hopeful centres of production, and upon the many promising districts which are being gradually and encouragingly exploited, we are afraid we must pass by the Philippines with a nod expressive of dissatisfaction with it. The Spaniards have always been notorious gold-seekers in their early conquests, and there is abundant proof that the Philippines have been ransacked by this nation for gold, more or less intelligently, for three centuries. Besides this, enterprising British firms have not failed to pay attention to the mineral resources of the country, and about 10 years ago they employed a well-known American engineer to examine the gold-producing districts that were in most repute, but his report was not sufficiently favourable to encourage speculation. As to the fact that a good deal of gold has been produced in the Philippines there is no dispute. There have existed various gold mines in different parts of the islands at various times, but they were not apparently successful, as they were abandoned, and such gold as has been produced, and is still produced, has been chiefly the outcome of the labour of thousands of natives washing away at alluvial and other deposits, and even crushing by buffalo power such auriferous quartz as they could extract; but

the gold thus produced has been small in amount compared with the amount of labour employed.

THE natives who have been engaged in these operations for centuries have always remained miserably poor, and various mining engineers have given it as their opinion that auriferous quartz reefs of sufficient richness to repay the employment of large capital is not to be looked for in regions which have had their soil so incessantly triturated by earthquakes and volcanic disturbances as the Philippines. With regard to recent enterprises they have been chiefly a return to working on old diggings. Considerable excitement prevailed in the spring of 1893 among some residents here who, as a floating population, cannot be expected to know much of the past mining history of the country. So far as one can learn from recent and other testimony, the islands are not fitted for gold mining operations on a large scale; what gold has been produced has been produced chiefly in the district of Camarines Norte (although a good deal has been found in other localities in a similar way) by the persistent patient labour of thousands of natives, who are said still to send up to the capital a considerable quantity of gold yearly. Whole villages in these localities stand deserted during the day, their inhabitants going forth every morning in tribes of men, women, and children, and scattering themselves about on all sides of these mountains and forest districts, either washing the alluvial deposits or crushing the quartz in their rude fashion.

THEY are very clever at this kind of work, but their average earnings are only from 9d. to 1s. per diem, and the washers, as has been said, present a wretched appearance. The soil has been so diligently searched by these natives, and for so long a time that it is described as being honeycombed all over to the depth of 20 or 30 feet, so much so that it is quite dangerous to walk in some localities. It is doubted whether substantial "leaders" or veins of any length are to be found anywhere, although an isolated "pocket" may occasionally be found, the gold being disseminated about in particles, so to speak, over vast surfaces. If there were in early geological periods solid gold "leaders," or gold veins, they are supposed to have been so crushed and dislocated by continuous volcanic action and by earthquakes, of which we have habitually several in the course of each year, and by which the soil has been constantly torn and crumbled, that they are now practically useless for expensive mining adventures, and that such gold as exists there can only have a deceptive attraction for large capitalists.

THE directors of the St. John Del Rey Mining Company (Limited) will submit a resolution at the annual general meeting on the 28th inst., to empower them to borrow a sum, or sums of money not exceeding £15,000, on such terms, and for such periods as they may determine. We are told, also, that the balance of 13,000 shares referred to in the half-yearly report of December, 1893, has been issued, the financial statement showing funds in hand sufficient to meet the superintendent's drafts, and London requirements up to 30th September next. The past year has, in more than one respect, been an anxious time for the directors and officials. The transportation of the machinery has been greatly hindered; provisions have been scarce and expensive; the company's agents have had to cease work at times, owing to the firing of the insurgents; whilst, in addition, "yellow fever has raged to a terrible degree in Rio." In fact, the company has experienced a depressing exemplification of the adage, "misfortunes never come singly." We are pleased to note, however, that these troubles have been minimised by the untiring energy of the agents and officials, the directors themselves expressing deep obligation to Messrs. P. S. Nicholson and Co., "for their exertions in landing and forwarding the machinery and plant during the revolt." Happily, the whole of the machinery is either at the mine, or has left Rio, so that, in the words of the superintendent, "there seems a good chance that 70 heads will be pounding away by the middle of June."

EVEN with silver at its present rate, there seems more than a probability of the mine of the Australian Broken Hill Consols yielding results highly satisfactory to the shareholders. More than one of the cablegrams have been of a kind to arouse considerable hopes for the future. All the evidences available point to the supposition that the mine of the company is a very valuable one. Its contiguity to other eminently successful properties is of itself a valuable augury, not so powerful, however, as the wonderful measure of prosperity which in times past has fallen to the lot of this particular mine. One only needs to take a glance at the mass of wealth already removed to sustain the conviction that considerably more remains behind. There was no exaggeration in the statement from the chair that a well-directed stroke of the pick might lead to a brilliant discovery. The past year's results, as reflected in the annual report, are by no means of a third-rate character, and the Chairman's assurance that the operations since effected have been of a much better character is a larger one than upon first sight might be gathered. Mr. Evans infused a semi-artistic interest into the proceedings by exhibiting the photographs of the company's property, taken during his recent visit to the mine, and adding a vivid description of the sort of country encountered in the region of the mines. Silver, it seems, is generally the accompaniment of severe territorial conditions, nature, presumably, having thrown in a plentiful besprinkling of the precious metal in compensation for the monotony of the desert.

WE are getting quite accustomed now to hear of the depressing effects upon companies, whose existence depends upon the metal, brought about by the low condition of the copper market, and, therefore, we quite anticipated the dolorous tone which characterises the report of the directors of the Namaqua Copper Company. After writing off amply for depreciation, the accounts show a loss of £4712 2s. 4d. on the year's working. This is not due to any falling-off in the output. Indeed, the

latter has shown a considerable increase as compared with 1892. During 1893 the actual returns were 3339 tons of 21 cwts., which is an improvement of 2016 tons over the output of the preceding twelve months. This increased output is to be attributed to a marked improvement in the mines, and there are good prospects of the improvement continuing. Therefore, it is all the more regrettable that the lowness of price has been against the company. It is sufficient to dishearten directors and shareholders alike, especially as not very hopeful signs exist at present of an improvement in the market. We are informed that a large amount of development work has been carried on during the year, with satisfactory results, the whole cost of which, as in previous years, has been written off to revenue.

THE Blue Spur and Gabriel's Gully Consolidated Gold Mining Company appear to have fairly turned the corner. Another year's working has resulted in a satisfactory and encouraging profit. During the twelve months 2195 ounces 18 dwts. 14 grains of gold have been won from the mine and sold for £8582 5s. 5d. Some time ago there were considerable doubts whether there was actually this much gold in the mine. This dubiousness has been effectually dispelled, and we are really pleased that our inward doubts had no foundation in fact. Out of the profit earned dividends have been paid on the preference shares amounting to £4822s. 4d. As yet, the ordinary shareholders have received nothing. They must still exercise patience. It is possible, of course, they will never receive any, but we will not go so far as to say it is probable. Whilst they are waiting they may console themselves that the directors are waiting, too. The latter take care to mention in their report that they have not drawn any fees during the year, as they are not able, they explain, to announce any dividend on the ordinary shares. If in future years the mine becomes more productive, they may ask for arrears for the past year. We hope, indeed, they will not have to exercise too much patience before they are rewarded. The mine, we learn, really looks promising.

THE directors of the American Belle Mines (Limited) are again unable to present their shareholders with a very encouraging report. The operations during the past year have not resulted in anything decidedly encouraging. The directors prefer to state it thus:—The revenue account shows a balance of expenditure for the year of £3602 18s. 9d. Unfortunately, of late, there have been many balances of this kind, and their presence is not likely to soothe the shareholders now. We do not blame the directors in the least for these depressing results. They have done nothing blameworthy. Indeed, the company possesses in its directorate an influential and able body of gentlemen, but even they, like other people, are unable to cope successfully with adverse influences. Mr. Crowther again visited the mines last autumn, and we are promised to hear a statement from him respecting many things affecting the future of the company.

THE report of the New Guston Company is a more satisfactory and encouraging document. The accounts show on revenue account a balance carried forward of £1794 18s. 8d. The amount of ore raised was considerably less than in the previous year, but the average sale value was slightly more. Against this the average mine cost was £3 11s. 2d., compared with £2 13s. 8d. in 1892. The directors explain that the wide variation in the tonnage value of ores raised and sold is due partly to the decline in the price of silver, but mainly to the change from very high to very low grade ores, the latter especially from the year 1891. It is encouraging to be told by the mine superintendent that the outlook is encouraging, and that the ore tonnage available for next shipping season is greater, probably, than it has ever been before in the history of the mine.

THE *Isle of Man Times* has been calling attention to and commenting upon the deplorable condition of mining in the Island, the direct result of the depression which has existed for so long. We are told that never before has it been in so depressed a condition. The year began with the industry suffering from the long-continued lowness of prices, and at that time it was only mines of exceptional value, worked in the most economical manner, that could be kept going without actual loss to the shareholders. Since then, instead of improving, things have gone worse, and, in consequence, the few small mines which, by great self-denial on the part of their owners, had been kept open for the sake of the men, have had to be closed and the men thrown out of employment. Some of these, which have shown that there is metal enough in them to enable them to be worked profitably in ordinary times, may be opened again when the markets improve; but others cannot be opened again for years to come, if at all. The only mines now at work in the Island, of all the numerous mining concessions taken up in the last 30 years, are the Foxdale and the Great Laxey. Both of these still enjoy a measure of prosperity which, under the circumstances, mark them out as two of the most remarkable lead mines in the world. This distinction they owe to their careful working, their great output, and the extraordinary richness of their lead ores in silver.

WE learn by this week's mail that important development works are proceeding on the property of the Village Main Reef Company. By arrangement with the City and Suburban, says our African contemporary, a crosscut has been set off from the main vertical shaft of the Village to meet a crosscut from the 6th level of the City. The result of this connection will be the improvement of the ventilation of the Village Main Reef Mine. The new vertical shaft, which, it is estimated, will cut the south reef at 1000 feet, has already reached a depth of 500 feet. So far, all stoping in the mine has been confined to the south reef. The main reef leader has been driven on for 200 feet on the second level, but encouragement to proceed with the development was not afforded by the results obtained by sampling.



The reef, so far as proved, consists of three small bands, with quartzite between, all being included in a thickness of 5 feet. So far, three faults have been encountered in the mine, the most serious being a strike-fault dipping 70° south, and involving a downthrow of 40 feet, measured on the fault. The mine is now about two or three months ahead of the mill as regards development, but with the vigorous system of development now being followed, our contemporary further states, no difficulty need be found in keeping the battery supplied with rock.

It is very rarely that we have the opportunity of commenting upon a silver mining company which has paid regularly, since November last, monthly dividends of 1s. per share, and when this fact is brought to our notice we take the liveliest interest in recording it. The name of this successful concern is the Western Silver Mining Company, whose headquarters are in Tasmania. Had it not been for the serious fall in the price of silver and lead, it would seem the shareholders of this company were in for a good thing. As it is, they may be congratulated, for the only thing they can look forward to, so experts assure us, is a rise in the price of the metal, and inferentially in the dividends they will receive. In their report the directors allude regretfully to the depressed state of the market, but they remark that an improvement has already set in, and that the price has risen 2d. per ounce over the lowest point touched during the past six months. At the close of the half-year the directors and manager visited the mine, and express themselves fully satisfied with what they saw. Everything was in good order, and reflected great credit on the general mining manager. At the close of the half-year about 1700 tons of second-class ore remained at grass. Everything in connection with this mine at present makes the future look hopeful.

It is pleasing to note that at last, after many and various vicissitudes, none of which were of a brilliantly profitable character, the annual reports and relative accounts of the Scottish mineral oil companies present something of a satisfactory nature. As a contemporary puts it, "it is true that the ordinary shareholder, or the intending investor, will search them in vain for any exhibition of present reward for past labour, but he will not look in vain for elements of hope with regard to the future." Indeed, when we cast our eyes but a little way back and regard once more the prospect of ruin that seemed to stare these concerns in the face, it is not a little surprising to find the present evidences of vitality. The career of these companies has been strangely stormy and beset with many obstacles. Many have succumbed to the stress of circumstances, but others have survived, and, it seems, all the better for the ordeal through which they have—may we hope successfully—passed. To all intents and purposes the trade is now confined to five survivors of the once numerous array of paraffin oil companies. Undoubtedly it is all the better for them, as well as for the industry, especially considering the condition in which the latter at present is. Although the manner in which the accounts of these five companies have been presented are open to severe criticism, we refrain from doing so, seeing that it has been pretty well done already, and in the hope, too, that we shall see an improvement in this direction also during the next 12 months.

## OUR CITY ARTICLE.

FRIDAY EVENING.

### THE MINING MARKET.

A quiet week.—South Africans dull, and Land shares doubtful.—Diamonds rally.

THIS has been, generally, a week of dullness for the South African market, and a small rally towards the last days saved the Miscellaneous section from an unfortunate continuity of gloom. Monday's markets were characterised by some briskness amongst the lower-priced shares, and a strongly marked dullness in the more solid securities. The two exceptional features of the South African market were Knight's and Langlaagte, both of which were in demand at improvements. Rallies among the smaller fry were general, and extended in some few instances to more important sections of both departments. Indians were characterised by distinctly a more hopeful tone, and the advances were not few. In contradistinction with the movement for betterment, the chief relapse occurred in Ooregums, which were again persistently sold. On the succeeding day, Tuesday, both markets were affected by the prevailing dullness. There were few exceptions to the general depressions, but among them were Ferreira and Crown, both of which were distinctly better in tone. The characteristic of Rand and diamond shares was one of extreme uncertainty. Chartered moved dubiously in both directions, and finally closed 3d. down on the day. Becha, Gold Fields, and Oceans remained unchanged, while small improvements occurred in Transvaal Land and Silati. In the other section of the market Indians were the feature, all classes of which were active. Champions and Ooregums were dealt in, but with them the movement was not in a favourable direction. For the smaller Indian shares there was a demand, which brought with it a noticeable accession of firmness. Both markets continued practically unchanged during Wednesday and Thursday. There was almost a complete stagnation in the South African department, one or two offerings producing a general movement downwards. Diamonds and land shares were quite out of keeping with the gloomy tone prevailing elsewhere. De Beers rallied on Wednesday to 16½, and the advance was fully maintained on the succeeding day. Jagers remained unchanged on both days. Chartered, as usual, changed prices a good deal. On Wednesday they were lower than for some time, while on the next day they opened at 31s., and closed firm at 31s. 3d., buyers. Other land shares remained firm at good prices. Explorings were the exception at a relapse to 4½. A better condition prevailed during those days in the Miscellaneous market, where a fair amount of business was done and a fairly general improvement was manifested. On Thursday evening a rally set in, and a considerable number of gains were registered. The approach of the end of the half-year probably exerted a narrowing effect upon the

amount of business transacted, and once the period is passed a revival may be expected.

#### British Mines.

The Cornish market has been exceedingly dull all the week, and there are no advances to record. A few transactions have taken place in Dolcoath, Killfret, and West Kitty, but at the moment there is not the least disposition either to buy or sell, dealers preferring to look on for the time.—Risen: None.—Fallen: Carn Brea, 20s.; East Pool, 10s.; South Crofty, 5s.; South Frances, 7s. 6d.; Tincroft, 15s.; West Kitty, 10s.; Wheel Agar, 20s.; Wheel Basset, 5s.; and Wheel Kitty, 1s. 3d.

#### South African Shares.

A decline in the speculative spirit was noticeable in the South African market at the beginning of the week. Business, consequently, was very limited, and one or two declines occurred in the more changeable quarters. Knight's and Langlaagte were the favourite features, the former advancing 2s. 3d. to 20s. upon determined support from the Cape, and Langlaagte to 4½, upon Paris buying. Smaller improvements also took place in Champ d'Or, Champ d'Or Deep, and South Simmers; while, on the other hand, trifling relapses occurred in Croesus, Henry Nourse, Heriot, Jubilee, and Jumpers, and New Primrose, Rand Mines, and United Roodepoort declined 1-32 or ¼. Luipaard's Vlei fell 1s. to 9s. 6d., and Bantjes, George and May, May Consolidated, and Spitzkop showed small declines. Diamonds were unusually flat, the market being affected by a number of causeless rumours. Land shares remained fairly strong, the principal quotations remaining the same. Little or no activity was displayed in the South African market throughout Tuesday. At times the house presented an almost deserted appearance, many of the members being elsewhere engaged. Marked advances occurred in Crowns and Ferreira. The former hardened to 8½, while the latter advanced to 8½ on the proposal to double the company's capital for the purchase of deep level claims. Geldenhuis Estate and Langlaagte Estate both closed strong at 4½, the former ½, and the latter ¾ higher. Jumpers and Spes Bona similarly improved. These exceptions apart, there was a generally downward movement in the market. Geldenhuis Deep, Jubilee, and Robinson fell slightly, and Stanhope, Transvaal Gold, Wemmer, and Worcester were all about ¼ lower. Modderfontein continued to decline, closing 1s. down at 15s. Gold Fields Deep and Main Reef were a shade weaker, Paarl Central fell 6d. to 21s. 6d., and Spitzkop was also down 6d. to 3s. 9d. Glencairn were easier, and the price fell 9d. to 34s. 9d. George and May were also quieter. Diamonds and Lands both displayed a doubtful tendency. De Beers fell to 15½ on considerable sellings, and Chartered relapsed and rallied, closing finally at 32s. 3d. down. Nothing occurred in the South African market on Wednesday to break the persistent monotony of dullness which has become the all-pervading feature of the market. A complete absence of a buoyant tone led to some further offerings, and these reacted upon the temper of the market. Relapses were general, and affected Meyer and Charlton, Salisbury, Glencairn, Main Reef, Princess, Randfontein, and Paarl Central. A somewhat unsatisfactory result of the past year's working occasioned a recession in Geldenhuis Mains to 8s. 6d. Geldenhuis Deep also were weaker at 3½. A highly favourable discovery of the south reef was not sufficient to set in a counter current for Croesus against the general depression. Crown and Ferreira accorded with the downward movement. Land shares afforded no exception to the prevailing gloom. Chartered relapsed to 30s. 3d. in the absence of any favourable reports as to mining work done on the company's property. Becha also were weak at 28s. 9d., and Nyassas and Central Africans dropped. Recessions were also recorded in Consolidated Gold Fields, and Transvaal Lands and Development. The single bright spot in the South African market was the healthy tone in De Beers, which advanced to 16½. Jagers, on the other hand, were dull. The racing at Ascot, and the approaching termination of the half-year, were responsible for a continuation of the dullness in this section of the market on Thursday. The announcement of the passing of the quarterly dividend occasioned considerable sellings of City and Suburban, the price closing ¼ down on the day. Some operations were also conducted in Geldenhuis Estate, Langlaagte Royal, Metropolitan, New Primrose, United Roodepoort, and Wemmer, small declines occurring in each case. Similarly small losses were experienced in George and May, New Main Reef, East Rand, Alexandra Estate, and May Deep Level. On the other hand, Robinson were somewhat firmer at 6½, and Transvaal Gold rallied to nearly 1½. Some demand also sprang up for Paarl Central, which were at 21s. 6d., or 6d. higher, and Knights left off 9d. better at 21s. on a continuation of support from the Cape. During to-day there has been no reassertion of activity in the South African market. Business has been at its dullest. Ferreira were firm upon the reconstruction scheme. Chartered closed at 30s. 3d., after moving doubtfully. Beyond this there has been nothing worthy of mention.—Risen: Crown Reef, 5s.; Ferreira, 10s.; Gordon, 6d.; Johannesburg Water, 6d.; Nigel, 2s. 6d.; Oceana, 2s. 6d.; Ottos Kopje, 3d.; Rand Mines, 2s. 6d.; South Simmer and Jack, 1s. 3d.; United Roodepoort, 1s. 3d.; Witwatersrandt (Knight's), 4s. 6d.—Fallen: Bechuanaal, 2s.; Buffelsdoorn, 1s.; Central Zoutpansberg, 3d.; Chartered, 2s.; Consolidated Gold Fields, 2s. 6d.; City and Suburban, 5s.; East Rand, 6d.; Exploring, 2s. 6d.; Frank Johnson, 1s. 3d.; Geldenhuis Deep, 2s. 6d.; Geldenhuis Main, 1s.; Glencairn, 1s. 6d.; Jubilee, 5s.; Jumpers, 2s. 6d.; Klerksdorp, 6d.; Lisbon, 3d.; Luipaard's Vlei, 1s.; Main Reef, 2s. 6d.; Mozambique, 1s. 3d.; Metropolitan, 1s. 3d.; Modderfontein, 1s.; Moodies, 6d.; New Croesus, 1s. 3d.; New Jagersfontein, 5s.; New Primrose, 2s. 6d.; Northern Transvaal Land, 6d.; Nyassas, 3s. 9d.; Rietfontein, 7s. 6d.; Robinson, 1s. 3d.; Simmer, 2s. 6d.; Spitzkop, 9d.; Transvaal Estates, 6d.; United Ivy Reef, 1s. 3d.; Wemmer, 2s. 6d.; Willoughby, 30s.; Zambesia, 2s. 6d.

#### Indian and Miscellaneous Shares.

In the Miscellaneous department activity was almost entirely confined to the lower-priced shares. Gustons and American Belles improved on the directors' reports. Harquahalas rallied to 8s. 6d. South Australian Petroleum were in demand, and revived to 2s. British Broken Hill, Glenrock, Kapanga, and West Argentine evidenced slight improvements. The same characteristics affected the Indian market. Buoyancy was displayed by the lower-priced shares, while among the higher securities there was something of a drooping tendency. Ooregums continued to be sold, and were further depressed. Against the relapses which affected Mysore West and Wynaad, improvements manifested themselves among Mysore Reefs, Nine Reefs, and Mysore Harnhalli. Kempinkote also were particularly strong, the price rallying from 1s. 9d. to 2s. 4½d. On Tuesday most of the activity in the Miscellaneous department was exhibited by the Indian shares. Champions and Ooregums absorbed most of the business, both being to some extent weaker. A counter movement set in for the smaller Indian shares, for which there was a sustained enquiry. Mysore West rallied to 6s. 9d., and Kempinkotes to 2s. 6d. One or two improvements were shown in other directions, among the participant shares being Don Pedro, Bayley's Reward, Mount Morgan, Broken Hill

"Prop," Elkhorn, Day Dawn Block, and Richmond. No decided movement in any one direction can be recorded of this section of the market for Wednesday. Among the shares which receded in price were Day Dawn Block, Kabonga, Nine Reefs, Lisbon, and Spitzkop. Gustons also relapsed. Montana, New Queen, Kapanga, and Don Pedro improved from various causes, Ooregums lost the unfavourable symptoms they have exhibited recently, and there were some eager buyings. Mysore Wests and Wynaad also improved. There was an improved tone in the Miscellaneous market on Thursday. Towards the close of the day, especially, a healthier characteristic manifested itself. A demand sprang up for Kabonga, while there was also a brisker market for American Belle, Don Pedro, Kapanga, and Kempinkote, all of which registered small improvements. The chief feature of the Indian market was the firmness of Ooregums, which closed firm. There has been some activity among the lower-priced miscellaneous shares during to-day, but the dominant feature has been the strengthening of Mysore West, Mysore Wynaad, and Kempinkote, which have all improved considerably in tone.—Risen: Aladdin's, 2s. 6d.; American Belle, 1s.; Cumberland, 3d.; Don Pedro, 1s. 3d.; Emma, 3d.; Glenrock, 3d.; Golden Gate (Queen's), 6d.; Kangarilla, 1s. 3d.; Kempinkote, 1s. 3d.; Montana, 1s. 3d.; Mount Morgan, 1s. 3d.; Mysore Reef, 6d.; do. West, 2s. 9d.; do. Wynaad, 1s. 9d.; Richmond, 1s.; Wentworth Priority, 1s. 3d.—Fallen: Australian, 3d.; Bayley's Reward, 1s.; Brilliant Block, 1s. 3d.; Burma Ruby, 1s.; Carrington, 3d.; Champion Reef, 3s. 9d.; Colombia Hydraulic, 6d.; Coromandel, 6d.; Day Dawn, 3d.; do. P.C., 3d.; De Lamar, 1s.; Elkhorn, 6d.; Gold Fields of Mysore, 6d.; Harquahala, 1s.; Jay Hawk, 1s.; Kabonga, 3d.; Loma, 3d.; Mason, 2s. 6d.; Mosman, 6d.; Mysore, 1s. 3d.; Namaqua, 3s. 9d.; New Guston, 1s.; New Queen, 3d.; Nundydroog, 1s. 3d.; Ooregum, 2s. 6d.; do. Preference, 5s.; Rio Tinto, 3s. 9d.; Ripanji, 1s.; St. John del Rey, 2s.; Victory, 1s.

#### SETTLING DAYS.

(Ticket Days.)	JUNE.	(Account Days.)
Wednesday, June 27		Thursday, June 28.

	JULY.	
Wednesday, July 11.		Thursday, July 12.
Thursday, July 26.		Friday, July 27.

#### CONSOLS SETTLING DAY.

Wednesday, July 4.

## LATEST FROM THE MINES.

### CABLEGRAMS AND TELEGRAMS.

**BAYLEY'S REWARD.**—The following cable dated 19th inst. has been received from Melbourne by this company's London office:—"Week's run ending June 9th 605 ounces gold. Stopes looking splendid." Copy of telegram, dated Coolgardie May 5 from mine manager to Melbourne office received by last mail by London office:—"40 feet water in Sylvester shaft. Water still rising in chamber and 50 feet of drives. Making fluming to carry water to battery. Unable to resume work in drive until water bailed out; commence Monday.—Cockshot shaft: Struck good gold to-day; similar stone upper levels Reward stopes. All parts mine yielding usual grade stone; cleaning boilers; start battery 5 stamps next week; week's run 500 ounces."

**BONNIE DUNDEE.**—The directors have received the following cablegram from Charters Towers:—"The new No. 3 shaft has been completed to a depth of 670 feet. Depth sunk for the month is less than usual, owing to putting in opening sets at intersection of Queen Cross reef."—P.S.: Cablegram of 24th May stated that Queen Cross Reef was met at about 620 feet from surface.

**CHIAPAS.**—The directors have received the following telegram from the mine:—"During May owing to want of water the mill ran 5 days. 140 tons of ore were crushed yielding 6 tons of concentrates. The mill has been running since June 2."

**CITY AND SUBURBAN.**—The following cable has been received:—"Will not pay a dividend 29th June, because of cost and erection of machinery largely exceeded estimate, absorbing profits. Will start crushing with new battery about the end of June. Have issued a circular to all shareholders."

**CRAVEN'S CALEDONIA.**—The following cablegram has been received, giving result of crushing, dated Charters Towers:—"440 tons yielding 980 ounces gold; partial clean up; dividend of 3d. per share, payable June 25."

**ELKHORN.**—Dividend warrants for the seventeenth dividend of 9d. per share (free of income-tax) have been posted this day to all shareholders registered on the books of the company on May 31, 1894.

**ELKHORN.**—Bullion produced in the mill for the week ending 16th June, 9300 ounces.

**GOLDEN GATE.**—The manager cables from Charters Towers:—"The present depth of the diamond drill bore from the surface is 990 feet. The rock passed through is hard syenitic granite."

**GRASKOP.**—The directors have received the following telegram from the manager at the mines at Graskop:—"Huntingdon mill: The goods not yet landed. Shall finish laying tram rails about the middle of July. Expect to start milling on or about one month after the arrival of the brakes."

**JAY HAWK AND LONE PINE.**—The directors have received the following telegram from the manager, viz.:—"Estimated return for the week, 7000 ounces. The Lone Pine shaft is down to the 1600 feet. Preparing to cross cut to the lode."

**KAPANGA.**—Since the telegram of the 4th inst., the directors have received cable information from the manager to the following effect:—"Kapanga: The shaft has been sunk 13 feet, making a total depth of 701 feet. The new lode in the shaft averages 2 feet wide and contains specks of free visible gold. We have again intersected a vein running parallel to the main vein. Three tons have been crushed, yielding 30 ounces of gold.—Coromandel: The tributaries on the new vein have crushed 4½ tons of ore; the yield has been 75 ounces of gold. The vein is looking better. Other tributaries have crushed 5 tons, yielding 100 ounces. Good ore is still being found."

**KEMPINKOTE.**—The directors have received the following telegram from the mine, dated 20th inst.:—"Garland's shaft: Have cut a lode in crosscut assaying 10 dwts. per ton. The width of the vein is not yet determined; over 6 feet."

**KOFFYFONTEIN.**—For the four weeks ending May 19, 26,136 loads of yellow ground were hauled and 19,653 loads washed, yielding 1037 carats, at an estimated cost of £935 8s.

**LAS OABESSES MANGANESE.**—Production for the week ending June 16 (six working days) 433 tons, or a daily average of 72 tons.

**NEW CROESUS.**—"The south reef has been struck in the 350 feet level, giving an assay value of 18½ dwts. from a body of ore 30 inches in width."



**MOUNT MORGAN (Queensland).**—Results for the month of May. Tons chlorinated, 6300; gold returned, 9891 ounces.

**MOUNT ZEEHAN (Tasmania).**—The following telegram has been received, dated Hobart 19th inst.:—"Milled 140 tons of ore in 6 days for 27 tons concentrates containing about 19½ tons of lead; and 1960 ounces of silver; shipped 30 tons per s.s. *Habsburg*."

**MYSOORE-WYNAAD CONSOLIDATED AND MYSOORE WEST.**—The mining manager reports by telegraph, dated June 15 as follows:—"Crushed 85 tons, of which 51 tons quartz yielding 31 ounces. South shaft marked improvement in 400 feet level."—June 18: "I have taken charge. Have struck a rich ore body in the 400 feet level. Average assays for last week are 4 ounces."

**OURO PRETO.**—This company has received a cablegram from the mines, giving the return for the month of May as follows:—"3079 tons produced 36,494 grammes = 1173 ounces."

**PAHANG CORPORATION.**—The directors announce the receipt of cable from the mines, giving particulars of the output for the month of May as follows:—"In 25 days of 24 hours each 615 tons of stone were crushed, producing 40 tons 8 cwt. of black tin. 20 head of stamps running; working costs, \$9500." An official note adds that on the basis of the last sales the estimated value of the above output is say \$16,600 showing a profit over working expenses of \$7100.

**QUEEN'S BIRTHDAY UNITED.**—The following cable has been received from Mr. W. T. Hansford, the company's local secretary, at Dunolly, dated 16th inst.:—"Queen's Birthday Mine, Centre Shaft: Developments opening up splendidly. Have struck a body of rich ore.—Belgium and Perseverance Mine: Water is giving much trouble. Men have resumed work at winze above the water level, from this stop we expect to get a valuable supply of ore." N.B.—The resumption of work at the winze on Belgium reef is at the point of discovery of the rich lode, which when last worked upon was of the value of 2 ounces gold to the ton.

**RANDFONTEIN ESTATES.**—A cablegram has been received stating that another bore-hole, sunk on Mynpacht No. 206, has struck the reef at a vertical depth of 143 feet 12 inches wide, and assaying 2 ounces to the ton, the distance between the first and second bore-holes being 4500 feet.

**SILVER KING.**—The following cable has been received from Mr. Edwards, manager at the company's mines:—"First half of June 1200 tons of ore crushed. Estimated production 13,000 ounces silver."

**ST. JOHN DEL REY.**—The directors have received a telegram from Mr. Chalmers, stating that he has thoroughly tested the pumping engine and mains, and also the winding engine, with most satisfactory results. The transmission machinery works equally well, but an omission of the contractors, and unforeseen alterations in details, will delay the starting of the mills to July.

**VICTORIA GOLD MINING ASSOCIATION.**—A dividend of 6d. per share has been declared, payable on July 7. A cablegram announces the fortnight's crushing as follows:—"404 tons yielded 712 ounces gold."

**WASSAU (Gold Coast).**—The produce of the mine for the month of April last realised £1557 1s. 11d., being 400 ounces standard. The mill worked 20 days 22 hours, and crushed 330 tons of ore, giving a yield of 1 ounce 4 dwts. standard per ton. Cablegrams have since been received advising the remittances for last month as 192 ounces bullion for the first half and 132 ounces for the second half, making 324 ounces for the month; and a yield of 1 ounce 1 dwt. per ton. The directors are satisfied that the falling off of the output during the latter half of the month is due to the heavy rains.

**WENTWORTH EXTENSION.**—Report dated May 12: Main shaft: East crosscut is in 112 feet. Face in diorite carrying the usual calcite veins. West crosscut 55 feet without change since last report.

**ZEEHAN-MONTANA.**—The following telegram has been received, dated Hobart 19th inst.:—"Milled 250 tons of ore for 37½ tons concentrates, containing about 28 tons of lead, and 3750 ounces of silver; shipped 70 tons per s.s. *Habsburg*."

MAIL advices to the Central News from Western Australia state that the White Feather gold district is attracting the greatest attention for the moment, on account of some important finds. Lord Percy Douglas informed a Central News correspondent that he had "snapped up" the best claim for the West Australian Gold Fields Company of London. The reef in this claim is stated to be of a very uniform character, with very rich leaders. A large quantity of gold has been deposited in the West Australian Bank from the Kurnalpi district, which is close to the borders of the Hampton Lands property. A large dam has been erected by the West Australian Gold Fields Company on the Beatrice claim, which it has just acquired. Miners are still flocking to the gold districts, and work promises to be very abundant. The Government is assisting the development of the mineral resources of the country in every way it can.

MR. SYLVESTER BROWNE returned to Perth on May 10 from Bayley's Reward Mine. He says that the two headed battery is turning out 500 ounces of gold per week. He warns the public against going to the field till railway communication is established.

The Transvaal gold fields produced a revenue of £896,436 during 1893, and £815,428 went to the Government, and the remainder was repaid to private landed proprietors. The total revenue of the country was £1,700,000; so that the gold fields are shown to be responsible for more than one half of this amount, while a large proportion of the balance is due indirectly to the mining industry. The Rand contributed £598,041 out of the £896,436, but this figure is raised to £792,572 by including the adjoining districts of Krogersdorp, Boksborg, and Heidelberg, all of which are usually considered as part of the Rand district. The revenue is 121 per cent. higher than in 1891 and 40 per cent. better than in 1892.

## FORTHCOMING MEETINGS.

\* We shall be obliged if Secretaries or other Officials of Mining, Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings—whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned—in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Balance sheets, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent.

Name of Company.	Date.	Nature of Meeting.	Place.	Time.
Edison-Berlyn Gold Mining	June 25	General	Cannon-street	2.30 p.m.
Fraser and Chalmers	June 25	General	Winchester Ho.	12 noon.
Norwegian Zinc Company	June 26	General	44, Gresham St.	3.30 p.m.
New Guelph	June 26	General	Winchester Ho.	12 noon.
American Bell Mining	June 26	General	Winchester Ho.	2.0 p.m.
Frontino and Bolivia	June 27	General	Winchester Ho.	2.0 p.m.
Nottingham Mining	June 27	General	19, Qn. Vict. St.	2.30 p.m.
New Virginia Gold Mine	June 27	General	Cannon-street	2.30 p.m.
Tolima Mining Company	June 28	General	Winchester Ho.	12.30 p.m.
St. John del Rey	June 28	General	Cannon-street	2.0 p.m.
Esme Company	June 28	General	Cannon-street	12 noon.
Le Lamer	June 29	General	Winchester Ho.	12 noon.
Blue Spar & Gabriel's Gulch	June 29	General	Winchester Ho.	12 noon.
Namakwa Copper	June 29	General	Cannon-street	2.30 p.m.

## NEWS FROM THE COLLIERIES.

### NOTES ON THE INDUSTRY—STATISTICS AND REFERENCES.

MR. RANDALL, in a lecture given before the "Canadaco and Severn Valley Field Club," after illustrating by diagrams the dislocations and distortions met with in working the mines in the Shropshire coal field, exhibited fossil specimens of the fauna and flora of the land and water of the coal-measure period. Passing to the superstructure of the mineral storehouse, he remarked that we cross a vast interval of time, not so great, however, with regard to the old red sandstone as in the case of the Silurian, for some of the plants are to be recognised again, and some of the fish of the primeval seas lived on in the coal-measure waters. It was neither a speedy nor a tranquil transition. There were disturbances of the underlying accumulation; hence the cliffs and inequalities which so much obstruct the progress of mining in some parts of the South Staffordshire, in the Coalbrookdale district, and in the Forest of Dean. Elevations of the sea-bed had taken place, land surfaces had appeared, over which vegetation gradually spread, storms swept down trees from pre-historic forests in the North, and floods brought down mud and sand and buried them together. In Coalbrookdale opposite the large trunk of a *Sigillaria elegans* is still to be seen lying prostrate in the sand in which it was buried, and in the same quarry some few years since forest giants were discovered standing upright as they grew.

THE *Glasgow Herald* hears on good authority that there is every prospect that the immense seam of coal lately discovered in Sydney will shortly be worked on an extensive scale. The doubt as to whether the coal would be mined was due to its great depth from the surface—2700 feet—but the Government and the syndicate having charge of the works have consulted engineers, who seek corroboration for their own estimates from the report of the Royal Commission on Mines, wherein it is stated that 4000 feet is a workable depth. The seam is 9 feet thick, of clean, almost smokeless, coal, and it is within a cable's length of the harbour of Sydney. The site is Crown property, and the whole mining area, some 10,000 acres, has been leased to a company in perpetuity, with an annual minimum rent of only 1s. per acre, on account of the tonnage royalty of 6d. for large coal and 3d. for small coal. The lease, we believe, is remarkable also for its brevity. The site chosen for the pits is free from all buildings, and has sandstone cliffs 40 feet high. It is also suitable for coal wharves, so that the largest of vessels may load at the pit mouth, and yet the site is within view of the Sydney Town Hall clock. The engineers estimate that 2000 tons per shift plant would cost £180,000, and that coal might be placed on board for 4s. a ton.

We learn that one of the large Scotch railways has placed an order for coals for locomotive purposes with English coal-owners, to cover its requirements over the time of the Scotch strike. The details have not yet transpired. Other railway companies are also in the market. A sale of some 500 tons of small coals has been also made to Scotland—for manufacturing purposes, and it is expected that other sales will follow.

THE united committee of Scottish coalmasters, who met at Glasgow on Wednesday afternoon to discuss the situation in connection with the coal trade, decided by a large majority not to entertain any proposals for conciliation, but to prepare for the issues of Tuesday's strike. Reports from masters in all parts showed a firm adhesion to the "No surrender" policy.

THE sinking operations carried on of late by the South Glamorgan Colliery Company at their Brynwith Colliery, have been rewarded with success, and a seam of splendid coal, 4 feet 5 inches, proved. The colliery has been working coal regularly for some time past out of what is known as the "Lantern" seam, and the seam just struck lies below this. The identity of the new seam is somewhat difficult to determine, but the general opinion is that the new seam is very like the *L. autwit* seam.

IN response to representations from workmen under the sliding scale as to the evils of underselling, the South Wales and Monmouthshire coalowners have appointed a committee to consider the matter. The men's representatives have also urged a revision of the sliding scale, especially insisting on a minimum clause.

MR. JOHN WATKINS, the secretary of the local lodges in the Bakenew district, presided on Monday evening at a meeting of colliers, held at the Traveller's Rest Inn, Old Farnace, called for the purpose of considering the question whether, when the sliding-scale agreement has expired—which it does at the end of the month—they shall take steps to join the Federation, or remain as at present. Mr. G. H. Rowlinson addressed the meeting at length, and in the result, it was decided unanimously to advise the executive not to take any steps at present to that end. It was mentioned that the executive would finally decide the question when reports from each district in the Forest had decided.

IN Glasgow on Thursday night the delegates of the Lanarkshire Miners' Federation, representing 16,000 miners, met to consider what they should recommend at the meeting of the Scottish Federation. The proceedings were private, but it is understood that they agreed unanimously to recommend that non-union miners should receive the same support as union miners, and that no men should be allowed to work after the strike, even if they were offered the old rate of wages. One delegate said that 20,000 men could get the old rate of wages if they continued to work.

THE German coal trade shows continued firmness, and the coal syndicate appears determined to obtain 8s. 6d. per ton for the locomotive coal required by the administration of the Prussian State Railways, says *Kulthor*. The Minister of Railways is unwilling to pay more than 8s. per ton, but the syndicate is well backed up, and there appears to be a strong probability that it will succeed in enforcing the 8s. 6d. Deliveries of coal from the Ruhr basin continue active.

AN article entitled "Metal Mining and Colliery Work Compared and Contrasted," by Albert Williams, junr., M.E., of Denver, Colorado, appears in the current number of the *Colliery Engineer and Metal Miner* of Scranton, Pa.

HOPES are still entertained that petroleum in paying quantities may still be struck in the Punjab. The Local Government has renewed the concession of oil mining rights granted to the Punjab and Oriental Oil Syndicate.

IN April the Mount Morgan Company treated 5710 tons 5 cwt. of auriferous matter for a yield of 7709 ounces. The number of men employed at the mine was 1100; 343 feet were driven, 97 feet sunk, and 4980 tons of crushing stuff raised.

THE Croydon crushings for April amounted to 2989 tons for 3877 ounces; dividends, £1745; calls, £882. The crushings for the past four months were 12,748 tons for 17,128 ounces, showing a decrease of 4760 tons and 8000 ounces on the corresponding period of last year.

ASSAYS from 2 to 3 ounces to the ton are, says the *Cape Times*, being obtained from the Chester and Van Dyk reef on the Randfontein Estate. This new reef will, it is said, enhance the value of the property.

DURING 1893 the output of the Lydenburg district was 30,352 ounces, an average of 2530 ounces a month. During the first four months of the present year, the returns have totalled 17,301 ounces, or 4325 ounces a month. The figures are:—January, 4236 ounces; February, 3853 ounces; March, 4107 ounces; and April, 5105 ounces.

## THE METAL MARKETS.

### LONDON METAL MARKET.

THE METAL MARKET—LONDON, JUNE 22.

#### Copper.

AFTER touching the lowest price it had reached for a long time, the market has rallied to some extent, and it almost looks as if the weak holders having sold out at the bottom prices, the copper had gone into stronger hands. At the same time the makers of English copper, who have taken low prices for some time past, are now out of the market, and consumers are coming forward rather better. The week opened flat with a drop in the price of G.M.B.'s of 5s., the statistics for the fortnight showing a large increase, and prices ruled from the 18th to the 20th between £37 17s. 6d. and £38 2s. 6d. s.c. and £38 5s. and £38 7s. 6d. three months. On 21st and 22nd there was a somewhat better tone, and to-day the market closes very firm at £38 10s. s.c., and £38 17s. 6d. three months, buyers. The daily transactions in G.M.B.'s have averaged about 600 tons. The mid-monthly statistics showed an increase for the fortnight of 1573 tons, a total supplies for the period being 7184 tons against deliveries 5611 tons. In furnace material 100 tons of 20 per cent. Mexican ores were done at 7s. per unit.

#### Tin.

has been a very steady market, s.c. varying only slightly from £70 2s. 6d., but forward tin has suffered somewhat in value, the premium for three months' tin over cash being now very small. The tone at the close is somewhat irregular and undecided, the quotations to-day being about £70 2s. 6d. to £70 5s. for cash, and £70 2s. 6d. to £70 7s. 6d. for forward dates. The shipments for the month are expected to be rather large. The Dutch market this week has been very quiet, and there is no change of prices to report. Transactions (this week) have mostly been made on some basis during the preceding week.

#### Pig Iron.

Scotch Shipments last week were 5606 tons, or 774 tons under the same period last year. The Glasgow market opened steady at 42s. 1½d. cash, and 42s. 3d. a month, and receded by gradual steps during the week to 41s. 10d. cash, but the closing is now firmer at 41s. 11½d. cash, and 42s. 1½d. a month buyers. Hematite closes at 44s. 1d., and Middlesbrough at 35s. 6d.

#### Lead.

was quoted yesterday a shade higher at £9 2s. 6d. to £9 3s. 9d., but to-day there are sellers at the lower price, and buyers at 1s. 3d. less. The market has been quiet, though the makers of manufactured report a fair demand, but at unremunerative prices.

#### Spelter.

In the lack of adequate demand, the article has drooped further, but the tendency is to-day, perhaps, a shade firmer, with buyers at £15 15s. for soft foreign, and specials quoted £15 7s. 6d. to £15 10s.

#### Antimony.

Smelters complain that ores are getting very scarce, but the quotation for regulus remains £32 to £32 10s.

#### Quicksilver.

remains quiet, at £6 firsts and 5 19s. seconds.

The following are to-night's (June 22) prices of metals:—

Copper.		£ s. d.	£ s. d.
Tough cake and ingot	...	40 10 0	41 0 0
Best selected	...	41 10 0	42 0 0
Sheets and sheathing	...	48 10 0	49 0 0
Flat bottoms	...	51 10 0	52 0 0
Good merchantable, spot, & 3 months respectively	...	33 10 0	35 17 6
Copper tubes, seamless	...	...	0 0 6½
Alloys.		£ s. d.	£ s. d.
Brass: Wire	...	...	0 0 4½
" Tubes (solid drawn)	...	...	0 0 5½
" Sheets	...	...	0 0 5½
PHOSPHOR BRONZE: Alloys II.	...	...	85 0 0
" III. or V.	...	...	85 0 0
" XI.	...	...	90 0 0
" Vulcan brand A1 B.C.	...	80 0 0	85 0 0
BRILL METAL	...	80 0 0	85 0 0
BULL'S METAL	...	...	70 0 0
Pewter (Vivian's).		£ s. d.	£ s. d.
Ingot	...	0 0 5½	...
Ordinary sheets, plates, bolts and bars	...	0 0 6½	...
Screw bolts and nuts	...	0 0 8½	...
Pump rods, plain	...	0 0 7½	...
" finished	...	0 0 10½	...
DELTA METAL: No. 4 (per ton)	...	...	73 10
" Sheets and plates (per lb.)	...	0 0 10½	...
" Bars, round, square, flat (per lb.)	...	0 0 9½	...
" hexagon (per lb.)	...	0 0 9	...
Tin.		£ s. d.	£ s. d.
English, ingots, f.o.b.	...	73 0 0	74 10 0
" bars	...	74 0 0	75 10 0
" refined	...	75 0 0	76 10 0
Strait, spot and 3 months respectively	...	73 2 6	74 10 0
Australian spot, and three months respectively	...	73 17 6	74 10 0
Banco (in Holland)	...	73 2 6	74 10 0
TIN PLATES: Charcoal, best quality	...	per box	0 16 0
" ordinary	...	...	0 14 0
" Coke, best quality	...	...	0 11 3
" ordinary	...	...	0 10 0
These prices of tinplates are f.o.b. at Swansea: at Liverpool 6d. per box more.	...	...	...

Iron.		£ s. d.	£ s. d.
Pig, G.M.B. f.o.b., Clyde, spot	...	...	2 1 10
" Scotch pig, No. 1 Gartsherrie	...	...	2 10 0
" Coltness	...	...	2 14 6
" Clyde	...	...	2 9 0
" Govan	...	...	2 3 3
Bars, Welsh, f.o.b. Wales	...	...	5 2 6
Plates	...	...	8 5 0
Bars, Staffordshire, at works	...	...	5 7 6
Sheets	...	...	8 7 6
Plates	...	...	5 12 6
Ship plates, Middlesbrough	...	...	4 17 6
STEEL: English spring	...	according to 15 0 0	18 0 0
" cast	...	nominal	40 0 0
" Rails at works, according to section	...	...	3 12 6
Lead.		£ s. d.	£ s. d.
Spanish or soft foreign	...	9 2 6	9 3 3
English pig, common	...	9 5 0	9 6 3
" L.B.	...	...	9 12 6
" sheet and bar	...	...	10 2 6
" pipe	...	...	10 12 6
" red	...	...	12 0 0
" white	...	...	16 0 0
" patent shot	...	...	13 10 0

Spelter.		£ s. d.	£ s. d.
Silesian ordinary brands	...	...	15 5 0
" special brands	...	...	15 10 0
English Swansons	...	...	15 17 6
Sheet Zinc	...	...	18 5 0

Antimony.		£ s. d.	£ s. d.
Antimony	...	32 0 0	32 10 0
Quicksilver.		£ s. d.	£ s. d.
Flask, 75 lbs. warrants	...	...	5 19 0

Manganese.		£ s. d.	£ s. d.
Ore, c.l.f., U.K. ports	...	0 0 10½	0 0 11½
1st quality, 50 per cent. and upwards	...	0 0 9½	0 0 10½
2nd " 40 " 47 per cent.	...	0 0 8	0 0 9
3rd " 40 " 47 per cent.	...	0 0 8	0 0 9

Aluminium.		£ s. d.	£ s. d.
98-99½ per cent. (guaranteed 98 per cent. min.) in ingots (1 cwt. lots)	...	0 1 10½	0 1 9½
do (1 ton lots)	...	0 1 8½	0 1 7½
98-99 per cent. guaranteed	...	0 1 8½	0 1 7½

MR. MATTHEWS, who lately managed the Central Mine, Southern Cross, has just concluded a tour of the eastern goldfields in Western Australia, and he strongly warns diggers not to venture on to the fields. He states that condensers and diggers' tools are selling for less than half their value at Coolgardie, where it requires £5 a week to keep a man in food and water. He has paid 15s. in Coolgardie for a drink for two horses. There is very little prospect, he thinks, of permanent water being struck in any of the mines. He predicts a severe famine at Coolgardie and Southern Cross during the wet season, when travelling will be next to impossible.



# "THE MINING JOURNAL" SHARE LIST.

**ABBREVIATIONS AND REFERENCES.**—The following are the significations of the abbreviations and references which occur in the Share List:—A, Antimony; B, Bismuth; C, Coal; D, Diamond; E, Gold; F, Iron; G, Lead; H, Manganese; I, Nitrate; J, Phosphate; K, Quicksilver; L, Ruby; M, Silver; N, Silver-lead; O, Sulphur; P, Tin; Q, Zinc. \* In the "called up" column of British Mines, signifies that the mine is conducted on "cost book" principles; † in the "Head Office" column of African Mines, signifies that the address given is not that of the head office, but of a sub- or transfer office and ‡, following the names of African mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct; we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

## BRITISH MINES.

Name.	Closing Price, June 12, 1894	Closing Price, June 15, 1894	Par.	Latest Dividend	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.
Atlas .....	—	—	£ s. d.	—	£ s. d.	12,000	Devon .....	Camborne.
Blue Hills .....	12/6 15/-	15/-	—	2/- May '81	5 9 6	5,353	Cornwall .....	Camborne.
Botalack .....	—	—	—	—	51 4 6	1,880	Cornwall .....	St. Just.
Carn Brea .....	7 7 1/2	8 1/2	—	2/6 Dec. '93	21 12 8	5,000	Cornwall .....	Carn Brea.
Cook's Kitchen .....	12/6 17/6	17/6	—	—	35 15 10	4,900	Cornwall .....	Camborne.
Cumberland .....	—	—	—	5 1/2 May '88	1 0 0	51,888	Cornwall .....	7, Angel-court E.C.
Derwentwater CLZ .....	—	—	—	—	1 0 0	30,650	Cumberland .....	Manchester.
Devon Gt. Cons. CA .....	22/6 27/6	27/6	—	3/- May '94	2 0 0	10,240	Devon .....	8, Pinesbury-circus.
Dolcoath .....	71 72	72	—	12/6 Apr. '94	9 12 6	4,700	Cornwall .....	Camborne.
Drakewalls CTM .....	—	—	—	—	0 2 0	61,856	Cornwall .....	Dashwood House.
East Grassington I .....	—	—	—	—	1 0 0	19,905	Yorkshire .....	Palmerston-building
East Pool .....	9 9 1/2	10	—	2/- April '94	0 9 6	6,400	Cornwall .....	Illogan.
Gawton .....	—	—	—	—	2 7 2	12,000	Devon .....	20, Great St. Helen's
Great Laxey .....	1 2	2	—	5/- Apr. '92	4 0 0	15,000	Isle of Man .....	Douglas, Isl. of Man
Green Hurtle .....	1/3 1/9	1/9	—	—/6 June '89	0 12 0	30,000	Cumberland .....	Newcastle.
Halkyn .....	—	—	—	2/- Sep. '93	1 0 0	10,000	Flintshire .....	Chester.
Hazworthy .....	—	—	—	—	1 0 0	14,634	Devon .....	6, Queen-street-place
Isle of Man .....	—	—	—	5/8 Sep. '93	5 0 0	14,000	Isle of Man .....	Chester.
Killfret .....	3 1/2 3 1/2	3 1/2	—	3/6 Dec. '93	5 11 6	6,000	Cornwall .....	Truro.
Kingside .....	—	—	—	3/- May '92	1 0 0	15,919	Cardiganshire .....	6, Queen-street-place
Lead Hills .....	15/- 20/-	20/-	—	3/- Sep. '92	6 0 0	20,000	Lanarkshire .....	30, Finsbury-circus.
Levant .....	—	—	—	5/- Dec. '93	11 9 6	2,500	Cornwall .....	Fenabaz.
Lovell .....	—	—	—	—	1 16 7	7,165	Wendron .....	3, Gt. Queen-st., S.W.
Miners (New) .....	—	—	—	5/6 Mar. '90	5 0 0	9,000	Denbighshire .....	Miners, N. Wales.
North's End .....	-8 1/-	1/-	—	6 1/2 Feb. '91	0 18 0	48,805	Northumberland .....	Newcastle-on-Tyne
New Balfour .....	—	—	—	—	1 0 0	25,000	Cornwall .....	St. Clement's Ho., E.C.
New Cooks Kitchen .....	—	—	—	—	10 10 3	4,900	Cornwall .....	Redruth.
Pedn-an-drea .....	—	—	—	—	4 3 6	7,000	Cornwall .....	Redruth.
Phoenix United .....	1/- 3/-	3/-	—	1/- Mar. '90	7 4 8	10,665	Cornwall .....	Liskeard.
Polbarro .....	22/6 25/-	27/6	—	—	3 7 9	18,000	Cornwall .....	37, Walbrook.
Prince of Wales .....	—	—	—	—	0 8 3	94,287	Cornwall .....	6, Draper's-gardens.
So. Condurow .....	12/6 17/6	17/6	—	3/6 Apr. '93	17 17 7	6,123	Cornwall .....	20, Great St. Helen
South Croft .....	1 1/2	2 1/2	—	—	17 2 6	6,120	Cornwall .....	Pool, Cornwall.
S. Frances Unitd. .....	5/- 10/-	17/6	—	—	2 7 6	6,000	Cornwall .....	Redruth.
Tincroft .....	11 12	12 1/2	—	2/- Apr. '94	15 7 8	6,000	Cornwall .....	Carn Brea.
Weardale .....	8 7/6	7/6	—	1/3 Oct. '90	1 10 0	50,000	Durham .....	3, Lombard-court.
West Frances .....	1 1/2	2	—	2/6 May '89	15 17 1	6,144	Cornwall .....	Camborne.
West Kitty .....	5 1/2 6 1/2	6 1/2	—	4/- Jan. '94	1 2 0	6,000	Cornwall .....	37, Walbrook.
Wheelager .....	1 1 1/2	2 1/2	—	2/6 Aug. '88	23 5 2	6,000	Cornwall .....	Redruth.
Wheel Razer .....	2 1/2 3 1/2	3 1/2	—	10/- Apr. '88	12 5 0	6,144	Cornwall .....	Redruth.
Wheel Friendly .....	2/- 4/-	4/-	—	—	0 11 3	10,000	Cornwall .....	37, Walbrook, E.C.
Wheel Grenville .....	7/6 10/-	11/3	—	3/- Feb. '94	18 2 0	6,000	Cornwall .....	7, Union-court, E.C.
Wheel Kitty .....	—	—	—	3/- Mar. '88	4 5 6	5,900	Cornwall .....	Truro.
Wheel Metal & F. .....	—	—	—	—	0 13 9	10,784	Cornwall .....	79 1/2, Gracechurch-st.

## AUSTRALIAN AND NEW ZEALAND MINES.

Achilles Gld. Flt. .....	1 1 1/2	1 1/2	1 0	—	1 0 0	80,307	New Zealand .....	3, Church Pas., E.C.
Aladdin Lamp .....	1 1/2 1 1/2	21/3	1 0	1/- Apr. '94	1 0 0	100,000	N. S. Wales .....	4-6, Throg. Avenue.
Anglo-Saxon .....	—	—	—	2/- July '89	1 0 0	51,000	Queensland .....	4, Lombard-court.
Australasian .....	1/3 1/9	2/-	1 0	-8 Mar. '92	1 0 0	210,000	Queensland .....	6, Queen-st. place
Australian .....	—	—	—	1/6 Aug. '93	7 10 0	18,315	So. Australia .....	15, Old Jewry Chbrs.
Aus. Bro. Hill Con. .....	2/9 3/3	3/-	1 0	1/- June '91	1 0 0	537,138	N. S. Wales .....	Winchester House.
Baker's Creek .....	1 1/2 1 1/2	1 1/2	1 0	1/- June '94	0 17 6	100,000	N. S. Wales .....	Hillgrove, N. S. Wales
Bayley's Reward .....	16/- 18/-	19/-	1 0	-4 May '94	1 0 0	480,000	W. Australia .....	2, Met. Ex. Buildings
Blue Spur & G. G. .....	-8 1/-	1/-	1 0	—	1 0 0	80,000	New Zealand .....	6, Gt. St. Helen's
Bonnie Dundee .....	3/9 4/3	4/3	1 0	—	0 18 0	120,000	Queensland .....	3-5, Gracechurch-st.
Brilliant .....	8/- 10/-	10/-	2 0	—	2 0 0	250,000	Queensland .....	Charters Towers.
Brilliant Block .....	18/6 17/6	1 1/2	2 0	-9 June '94	2 0 0	250,000	Queensland .....	Charters Towers.
Brilliant, St. Geo. .....	9/- 11/-	11/-	0 10	—	0 6 3	72,000	Queensland .....	Charters Towers.
Brit. Brok. Hill .....	4/- 5/-	5/-	0 8	—	4 0 0	240,000	N. S. Wales .....	Abchurch Chambers
Broken Hill Prop. .....	2 1/2 2 1/2	2 1/2	0 8	1/- June '94	0 8 0	960,000	N. S. Wales .....	Abchurch Chambers
Carrington .....	1/3 1/9	2/-	12 6	—	0 12 6	100,000	Queensland .....	9, Tokenhouse Yard.
Craven's Cal. .....	4/- 4/6	4/6	0 6	-3 Apr. '94	0 4 8	100,000	Queensland .....	30-31, St. Swithin's-lane
Croydon King Rik .....	—	—	—	—	0 5 0	60,000	N. Queensland .....	Leedehall Big. E.C.
Cumbrind (New) G. .....	-8 1/-	-9	1 0	2/6 Dec. '87	1 0 0	184,490	Queensland .....	Blomfield House E.C.
Day Dawn B. & W. G. .....	5/6 6/-	6/3	1 0	-6 Mar. '93	1 0 0	494,400	Queensland .....	3-5, Gracechurch-st.
Day Dawn P. C. G. .....	3/3 3/9	4/-	1 0	-8 Apr. '92	1 0 0	490,000	Queensland .....	Winchester Ho., E.C.
Degehawk .....	-9 1/3	1/3	1 0	—	0 19 3	120,000	Victoria .....	31, Lombard-street.
Etheridge .....	—	—	—	—	0 5 0	324,290	Queensland .....	6-7, Queen-street-pl.
Frederick the Gt. G. .....	—	—	—	—	1 0 0	125,000	Victoria .....	St. George's House.
Golden .....	1/9 2/3	2/-	1 0	—	0 19 6	225,000	N. Zealand .....	3-5, Queen-st. W.C.
Golden Gate .....	-8 1/-	1/-	0 10	—	0 19 0	150,000	Queensland .....	9, Tokenhouse Yard.
Harrietteville .....	—	—	—	-8 July '90	1 0 0	146,330	Victoria .....	6-7, Queen-street-pl.
Kaboonga .....	1/9 2/3	2/6	0 10	—	0 10 0	500,000	Queensland .....	30, St. Swithin's-lane
Kangaroo .....	1/- 1/6	1/3	1 0	—	1 0 0	88,275	So. Australia .....	68, Throg. Avenue.
Kapang .....	3/9 4/3	4/3	1 0	-8 Jan. '91	0 19 0	250,000	N. Zealand .....	9, New Broad-street
Kilgiver .....	3/6 2/-	2/-	1 0	—	1 0 0	81,292	Queensland .....	4, Coleman-street.
Kilda G. P. .....	—	—	—	—	1 0 0	180,000	Victoria .....	32, Poultry, E.C.
Killa's Day Dawn .....	1 1/2 1 1/2	1 1/2	1 0	-6 June '94	0 15 9	300,000	Queensland .....	3, Gracechurch-st.
Moruya .....	—	—	—	—	1 0 0	55,225	N. S. Wales .....	16, St. Helen's-place
Moosman .....	2/6 3/6	4/-	1 0	-6 May '94	1 0 0	185,000	Queensland .....	3-5, Gracechurch-st.
Mount Leyshon .....	-9 1/3	1/3	1 0	-6 Dec. '90	1 0 0	157,880	Queensland .....	7, Draper's-gardens.
Mountain Maid .....	1/- 2/-	2/-	1 0	—	0 6 3	56,000	Queensland .....	Leedehall Bldg.
Mount Morgan .....	2 1/2 2 1/2	2 1/2	1 0	-6 June '94	0 17 6	1,000,000	Queensland .....	9, Tokenhouse-yard.
Mount Zeehan .....	-9 1/3	1/3	1 0	—	1 0 0	193,257	Tasmania .....	Mansion Ho. Cham.
N. Smithfield .....	—	—	—	2/6 June '94	0 10 0	48,000	Gympie .....	Queensland
New Queen .....	6/6 7/3	7/6	1 0	-5 Apr. '94	0 19 6	158,915	Queensland .....	30, St. Swithin's-lane
No. 7 N. E. Queen .....	-8 1/-	1/-	2 10	-3 Sept. '92	0 8 9	96,000	Queensland .....	30, St. Swithin's-lane
Port Phillip .....	—	—	—	—	0 5 0	200,000	Victoria .....	57, Moorgate-st., E.C.
Queen's Bldy. Un. .....	—	—	—	—	0 10 0	75,000	Queensland .....	7-8, Gt. Winchester St.
Queens Smelting .....	3 1/2 3 1/2	3 1/2	1 0	—	1 0 0	26,244	Queensland .....	9, Tokenhouse Yard
Scottish Australian .....	—	—	—	14-55, May '94	0 10 0	200,000	Queensland .....	Winchester Ho. E.C.
Sunburst .....	—	—	—	-6 Mar. '92	0 10 0	150,000	Queensland .....	9, Tokenhouse Yard
Tasmanian Crown .....	—	—	—	—	1 0 0	125,990	Tasmania .....	8, Old Jewry, E.C.
Tipperary .....	—	—	—	—	1 0 0	35,000	N. Zealand .....	3-5, Queen-st., E.C.
True Blue .....	—	—	—	—	1 0 0	53,000	Australia .....	Leedehall Big. E.C.
Victoria Associatn. .....	—	—	—	-5 July '94	1 0 0	144,000	Chas. Towers .....	6, Crosby-square
Victory .....	6/- 8/-	9/-	0 5	-3 Sept. '93	0 5 0	200,000	Queensland .....	32, Gresham-st., E.C.
Walhi .....	1 1/2 1 1/2	1 1/2	1 0	1/- June '94	1 0 0	150,000	New Zealand .....	11, Abchurch-lane, E.C.
Westworth Ord. G. .....	4/- 5/-	5/-	1 0	—	1 0 0	250,000	N. S. Wales .....	4-6, Throg. Avenue.
West. Priority .....	1 1/2 1 1/2	1 1/2	1 0	8/- Jan. '93	1 0 0	150,000	N. Zealand .....	3-5, Queen-street.
W. Argentine .....	1 1/2 1 1/2	1 1/2	1 0	—	1 0 0	65,000	W. Australia .....	28-29, St. Swithin's-lane
W. Australian G.P. .....	15/3 18/9	18/9	2 0	—	1 0 0	65,000	W. Australia .....	28-29, St. Swithin's-lane
W. Australian G.P. .....	2/- 4/-	4/-	1 0	—	0 4 0	65,000	W. Australia .....	28-29, St. Swithin's-lane

## INDIAN AND ASIATIC MINES.

Dalaghat Mysore G	6/6 7/6	7/6	1 0	—	0 17 0	160,000	India .....	6-7, Queen-street-pl.
Burma Ruby.....f	4/6 5/6	5/-	1 0	—	0 17 0	300,000	Burmah .....	Suffolk House, E.C.
Champion Reef... G	3 1/2 4 1/2	4	1 0	—	1 0 0	200,000	India .....	6-7, Queen-street-pl.
Colar Central ... G	3/- 4/-	4/-	1 0	—	1 0 0	200,000	India .....	Dashwood Ho., E.C.
Coromandel..... G	1/8 2/6	3/-	1 0	—	0 12 6	95,000	India .....	6-7, Queen-st. place.
Devika Moys ... G	—	—	1 0	—	1 0 0	200,000	India .....	34, Nicholas-lane.
Gemming & Mining	—	—	2 0	—	1 7 8	19,594	Ceylon .....	183, Gresham House
Gold Fids Mysore G	22/6 23/6	24/-	1 0	1/- July '92	1 0 0	220,000	India .....	6-7, Queen-street pl.
Gold Fids Siam G	—	—	1 0	—	1 0 0	150,000	Siam .....	19, St. Swithin's-lane
Hyderabad Dec....	5 1/2 6	6	10 0	—	10 0 0	115,000	Deccan .....	16, St. Helen's-place
Kempinkote GdPd	2/9 3/3	2/-	0 5	—	0 3 0	665,473	India .....	6-7, Queen-st. place.
Mysore .....	13 1/2 14 1/2	3	1 0	8/- July, '94	1 0 0	256,760	India .....	6-7, Queen-street pl.
My. Harbail .....	2/3 2/9	3/-	1 0	—	0 18 0	100,000	India .....	2, East India Avenue
Mysore Reefs .....	14/6 15/6	15/-	1 0	—	0 19 0	135,067	India .....	6-7, Queen-street-pl.
Mysore West .....	7/- 7/6	7/6	1 0	—	1 0 0	127,400	India .....	2, Tokenhouse Yard
Mysore Wines <sup>a</sup> G	2/9 3/3	3/6	1 0	—	1 0 0	250,000	India .....	Dashwood Ho., E.C.
Nerbudda Coal & In	—	—	3 0	—	2 11 0	49,839	India .....	213, Gresham House
Nine Feeds .....	1/6 2/6	2/6	0 10	—	0 10 0	80,000	India .....	6-7, Queen-street-pl.
Nine Feeds .....	-9 1/3	1/3	0 10	—	0 9 0	200,000	India .....	6-7, Queen-street-pl.
Nunddroog..... G	23/6 26/3	27/6	1 0	1/- Mar. '94	1 0 0	200,000	India .....	6-7, Queen-street-pl.
Oragum (D. O. C.)	3 1/2 4 1/2	4 1/2	1 0	4/- Mar. '94	1 0 0	145,000	India .....	6-7, Queen-street-pl.
Do. (10 1/2 Prof.)	4 1/2 5 1/2	5 1/2	1 0	4/- Mar. '94	1 0 0	120,000	India .....	6-7, Queen-street-pl.
Pahang Corp. ....	7/- 8/-	8/-	1 0	15 1/2 Apr. '93	1 0 0	123,070	Malay Penin. ....	Blomfield Ho., E.C.
Pahang Kabang ..	—	—	1 0	—	1 0 0	294,760	Malay Penin. ....	4, Jeffry's sq., E.C.
South Mysore G	6/6 6/6	6/6	0 4	—	0 3 0	123,074	India .....	6-7, Queen-street-pl.



## "THE MINING JOURNAL" SHARE LIST (AFRICAN MINES).

Name.	Closing Price, June 22, 1894.	Closing Price, June 15, 1894.	Par.	Latest Dividend.	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.	Name.	Closing Price, June 22, 1894.	Closing Price, June 15, 1894.	Par.	Latest Dividend.	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.
Africkander G	20/- 22/6	22/6	1 0	—	1 0 0	40,000	Transvaal	19, St. Swithin's-lane	Main Reef (New) G	11/3 13/9	16/3	1 0	—	1 0 0	300,000	Witwatersdr.	8, Old Jewry.
Agnes Block G	10/- 12/-	12/-	1 0	—	1 0 0	75,507	Transvaal	54, Old Broad-street.	May Consol. G	8/6 9/6	10/-	1 0	—	1 0 0	430,000	Witwatersdr.	4, Lothbury.
Aurora G	8/- 10/-	10/-	1 0	5% Mar. '93	1 0 0	65,000	Witwatersdr.	8, Old Jewry.	May Deep Level G	9/8 10/6	10/6	1 0	—	1 0 0	148,000	Witwatersdr.	33, Cornhill, E.C.
Aurora West, New G	5/- 7/6	7/6	1 0	5% Mar. '93	1 0 0	80,000	Witwatersdr.	1, Crosby Square.	Metropolitan (N) G	11/3 13/9	15/-	1 0	—	1 0 0	75,000	Witwatersdr.	1, Crosby Square.
Balks Eerestling...	-/8 -/8	-/7 1/2	0 10	—	0 9 8	520,000	Transvaal	85, Gracechurch-st.	Meyer & Charl. G	5 1/2 5 1/2	5 1/2	1 0	25% Dec. '93	1 0 0	71,887	Witwatersdr.	Warnford-court.
Balks Land G	1/9 2/3	2/3	0 10	—	0 10 0	520,000	Transvaal	85, Gracechurch-st.	Modderfontein G	14/6 15/6	16/6	1 0	—	1 0 0	70,000	Witwatersdr.	Warnford-court.
Banket G	15/- 14/-	14/-	1 0	—	1 0 0	83,000	Witwatersdr.	Warnford-court.	Montrose G	2 1/2 2 1/2	2 1/2	1 0	—	1 0 0	120,000	De Kaap	8, Old Jewry.
Bantjes Reef G	1/9 2/3	2/3	1 0	—	0 9 0	207,496	De Kaap	17, Basinghall-street	Moodies G & E. G	8/6 9/6	10/-	1 0	—	1 0 0	120,000	De Kaap	8, Old Jewry.
Barrett (New) G	29/- 30/-	30/-	1 0	—	1 0 0	200,000	Bechuanaland	19, St. Swithin's-lane	Mossambique G	11/3 13/9	13/9	1 0	—	1 0 0	400,000	S. E. Africa	Broad-street House.
Bechuanaland Exp	5/2 6/6	6/6	1 0	—	1 0 0	76,000	Witwatersdr.	9, King William-st.	Namaqua G	11/3 13/9	17/6	2 0	2/6 July '91	2 0 0	194,331	Namaqualand.	34, Leadenhall-bld.
Block "B" Lang.	6/6 7/8	7/8	1 0	—	1 0 0	535,000	Witwatersdr.	8, Princes-st. E.C.	New Chimes G	2 1/2 2 1/2	2 1/2	1 0	10% June '94	1 0 0	70,000	Witwatersdr.	8, Old Jewry, E.C.
Brooklyn Land G	5/- 7/-	7/-	1 0	—	1 0 0	95,000	Transvaal	4, Tokenhouse-bld.	New Clever Estate	1 1/4 1 1/4	1 1/4	1 0	—	1 0 0	100,000	Lydenburg	28-30, Holborn-viad.
Brit. S. A. Char.	30/- 31/-	33/-	1 0	—	1 0 0	2,070,000	S. Africa	19, St. Swithin's-lane	New Crown G	1 1/4 1 1/4	1 1/4	1 0	5% Aug. '92	1 0 0	195,000	Langlaagte	4, Bishopsgt.-st. Wt.
Buffelsdoorn G	35/- 37/-	38/-	1 0	—	1 0 0	250,000	Potchefstroom	8, Old Jewry.	New Edwin Brav	2 1/2 3 1/2	3 1/2	1 0	—	1 0 0	85,000	De Kaap	23, College Hill.
Cane Copper G	15 1/2 15 1/2	15 1/2	2 0	1/3 June '94	2 0 0	300,000	Cape Colony	9, Queen-street-place	New Gordon D	14 1/2 14 1/2	14 1/2	10 0	5% Dec. '93	1 0 0	500,250	Grigoland W	5, Conthall-buildings
Do. 5% Pref.	2 1/2 2 1/2	2 1/2	2 0	1/3 June '94	2 0 0	45,000	Cape Colony	9, Queen-street-place	New Louis D'Or G	5/6 6/-	6/-	1 0	—	1 0 0	100,000	Witwatersdr.	53, New Broad-street
Con. Montrose G	1 1/8 2 1/8	2 1/8	1 0	—	0 17 0	149,000	Transvaal	16, Throgmorton Av.	New Primrose G	4 1/2 4 1/2	4 1/2	1 0	4/- July '93	1 0 0	230,000	Witwatersdr.	2, Draper's-gardens
Champ d'Or G	1 1/2 1 1/2	1 1/2	1 0	—	1 0 0	116,016	Witwatersdr.	8, Old Jewry, E.C.	New Rietfontein G	1 1/4 1 1/4	1 1/4	1 0	—	1 0 0	160,000	Witwatersdr.	Warnford-court, E.C.
City and Suburb G	14 1/2 14 1/2	14 1/2	1 0	25% Mar. '94	1 0 0	75,000	De Kaap	1, Crosby Square.	New Spies Bona	8/- 10/-	10/-	1 0	—	1 0 0	113,801	Witwatersdr.	24, N. John-st., L'pl.
Cootersroom G	1/- 2/-	2/-	0 5	—	0 5 0	140,000	De Kaap	105, Leadenhall-street	N. Ophir Consol. G	-/9 1 1/3	1 1/3	1 0	—	0 18 6	111,857	E. Coast Africa	31, Lombard-street.
Con. Ruitfontein D	27/- 28/-	28/-	1 0	5% Nov. '89	1 0 0	721,500	Grigoland W	62, Lombard-st.	Nigel G	2 1/2 2 1/2	2 1/2	1 0	10% Mar. '94	1 0 0	160,000	Witwatersdr.	1, Crosby Square.
Con. Deep Levels G	2 2 1/2	2 1/2	1 0	4/- June '94	1 0 0	187,250	Transvaal	30, St. Swithin's-lane	Noitgedacht E. G	—	—	1 0	—	1 0 0	160,000	Lydenburg	8, Old Jewry.
Con. G. Fields S. A.	2 1/2 2 1/2	2 1/2	1 0	10% Nov. '93	1 0 0	250,000	S. Africa	8, Old Jewry.	Oceana G	1 1/2 1 1/2	1 1/2	1 0	25/- Nov. '89	1 0 0	150,000	Transvaal	4, Sun Court, E.C.
Do. 5 1/2% Deben	8 1/2 8 1/2	8 1/2	1 0	25% May '94	1 0 0	123,000	Witwatersdr.	22, Austin Friars.	Orange F.S.E. D	3 1/2 4	4	1 0	—	1 0 0	234,000	Orange F. State	10, Moorgate-street.
Crown Reef G	8 1/2 8 1/2	8 1/2	1 0	—	1 0 0	123,000	Witwatersdr.	22, Austin Friars.	Orion G	—	—	1 0	10% May '94	1 0 0	30,000	Witwatersdr.	10, Basinghall-street
De Beers Consol. D	18 1/2 18 1/2	18 1/2	5 0	12 1/2 Feb. '94	5 0 0	789,791	Transvaal	62, Lombard-street.	Otto's Kopje D	1/9 2/3	2/-	1 0	—	0 19 3	437,888	Kimberley	112, Cannon-st., E.C.
Do. 5 1/2% 1st Deb.	7 1/2 10 1/2	10 1/2	5 0	5 1/2 Feb. '94	5 0 0	1,375,000	Transvaal	62, Lombard-street.	Paarl Central G	21/- 23/-	23/-	1 0	—	1 0 0	138,750	Transvaal	20-30, Hol. Via., E.C.
Do. 5 1/2% 2nd Deb.	10 1/2 10 1/2	10 1/2	5 0	5 1/2 Jan. '94	5 0 0	1,647,000	Transvaal	62, Lombard-street.	Pigg's Peak, New G	2/- 3/-	3/-	1 0	—	0 16 6	230,328	Swaziland	6, Queen-street-place
Do. 5 1/2% 3rd Deb.	10 1/2 10 1/2	10 1/2	5 0	5 1/2 Apr. '94	5 0 0	720,100	Transvaal	62, Lombard-street.	Potchefstroom G	1 1/2 2 1/2	2 1/2	1 0	—	1 0 0	161,000	Potchefstroom	19, Bury-st., E.C.
Durban Rooftop G	5 1/2 6 1/2	6 1/2	1 0	3/- June '94	1 0 0	125,000	Witwatersdr.	28, Leadenhall-bldg	Princess Estate G	20/- 22/-	22/-	1 0	—	1 0 0	72,046	Witwatersdr.	33, Cornhill, E.C.
East Rand G	13 1/2 14 1/2	15/-	1 0	—	1 0 0	571,000	Witwatersdr.	170, Winchester-ho.	Rand Mines G	4 1/2 4 1/2	4 1/2	1 0	—	1 0 0	1,916,500	Witwatersdr.	59, Holborn-viaduct.
Evelyn G	4 1/2 4 1/2	4 1/2	1 0	10% Jan. '89	1 0 0	44,000	S. Africa	19, St. Swithin's-lane	Rand Mines G	4 1/2 4 1/2	4 1/2	1 0	—	1 0 0	332,798	Witwatersdr.	29-30, Holborn Via.
Exploring Co. G	1 1/2 1 1/2	1 1/2	1 0	—	0 40	149,000	S. Africa	30, St. Swithin's-lane	Read's Drift D	9/- 10/-	10/-	1 0	—	1 0 0	5,000	Transvaal	19, Finsbury-circus.
Exhibition G	1 1/2 1 1/2	1 1/2	1 0	—	0 40	149,000	S. Africa	30, St. Swithin's-lane	Robinson G	6 1/2 6 1/2	6 1/2	5 0	4% June '93	5 0 0	543,750	Transvaal	55, Holborn-viaduct.
Ferreira G	8 1/2 8 1/2	8 1/2	1 0	50% Jan. '94	1 0 0	45,000	Witwatersdr.	29, Holborn-viaduct.	Roadport Un. G	2 1/2 2 1/2	2 1/2	1 0	—	1 0 0	100,000	Witwatersdr.	Warnford-court.
Forbes Reef (New) G	3/- 5/-	5/-	1 0	—	0 19 0	105,000	De Kaap	45-6, Leadenhall-st.	St. Augustine D	-/9 1 1/3	1 1/3	1 0	—	1 0 0	465,000	Grigoland W	30-31, St. Swithin's-lane
Geldenhuis Deep G	3 1/2 3 1/2	3 1/2	1 0	—	1 0 0	255,000	Transvaal	30, St. Swithin's-lane	Salisbury New G	2 1/2 2 1/2	2 1/2	1 0	—	1 0 0	93,000	Witwatersdr.	1, Crosby Square.
Geldenhuis Est. G	4 1/2 5 1/2	5 1/2	1 0	10% Mar. '93	1 0 0	187,500	Witwatersdr.	29 & 30, Hol. Viaduct	Sheba G	30/- 31/-	31/-	1 0	1/- July '94	1 0 0	614,450	Lydenburg	85, Gracechurch-st.
Do. Main Reef	8 1/2 9 1/2	9 1/2	1 0	—	1 0 0	105,000	Witwatersdr.	Warnford-court, E.C.	Silati G	2 1/2 3 1/2	3 1/2	1 0	—	1 0 0	625,000	Zoutpanberg	4, Sun Court, E.C.
George and May G	10 1/2 10 1/2	10 1/2	1 0	—	1 0 0	100,000	Witwatersdr.	Warnford-court, E.C.	Simmer & Jack G	7 1/2 8 1/2	8 1/2	1 0	10% May '94	1 0 0	52,000	Witwatersdr.	33, Cornhill.
Glencairn G	33/8 24/8	24/8	1 0	—	1 0 0	200,000	Witwatersdr.	Johannesburg.	S.A. Gold Trust	15/6 16/6	16/6	1 0	10% April '93	0 10 0	220,000	South Africa	8, Old Jewry.
Gold Estates G	3 1/2 4 1/2	4 1/2	1 0	15% Dec. '89	0 10 0	130,000	Transvaal	2, Drapers-gardens.	S. Simmer & Jack G	—	—	1 0	—	1 0 0	120,000	Witwatersdr.	31, Lombard-st., E.C.
Gld. F. Deep. G	15 1/2 15 1/2	15 1/2	1 0	—	1 0 0	600,000	S. Africa	46, Queen Victoria-st.	Spitzkop (New) G	3 1/2 4 1/2	4 1/2	1 0	50% May '93	0 19 6	144,331	Lydenburg	15, Bishopsgt.-st. Wt.
G. F. of Mashonid.	17 1/2 20/-	20/-	1 0	—	1 0 0	220,000	Mashonaland.	19, St. Swithin's-lane	Stanhope G	1 1/2 2	2	1 0	—	1 0 0	34,000	Witwatersdr.	1, Crosby Square.
Grahamstown G	9 1/2 10 1/2	10 1/2	1 0	—	1 0 0	150,000	Witwatersdr.	14, Throgmorton-st.	Sutherland R. G	4 1/2 4 1/2	4 1/2	1 0	—	0 18 6	220,000	Zoutpanberg	3, Hodge-row, E.C.
Graskop G	1 1/2 1 1/2	1 1/2	0 5	2 1/2 Mar. '93	0 5 0	500,000	Lydenburg	85, Gracechurch-st.	Teutonia G	—	—	1 0	—	1 0 0	96,000	Witwatersdr.	8, Old Jewry.
Grigoland W. D	7 1/2 7 1/2	7 1/2	10 0	—	10 0 0	105,000	Transvaal	62, Lombard-street.	Trans. Coal Trust	11/6 12/6	12/6	1 0	-/8 Oct. '93	1 0 0	439,965	Witwatersdr.	Broad-t. House, E.C.
Do. 5% Deben	2 1/2 3	3	5 0	—	5 0 0	100,000	De Kaap	Waru-ord-court.	Trans. Est. & Dev.	9/8 10/8	11/-	1 0	—	1 0 0	285,700	Transvaal	78, Old Broad-st., E.C.
Henry Nourse G	2 1/2 3	3	5 0	—	5 0 0	100,000	De Kaap	Waru-ord-court.	Trans. Gold G	1 1/2 2	2	1 0	1/- Dec. '93	1 0 0	285,000	Transvaal	33, Cornhill.
Horlet (New) G	4 1/2 4 1/2	4 1/2	1 0	—	1 0 0	100,000	Witwatersdr.	1, Crosby Square.	Trans. Land G	5/8 6/8	6/8	1 0	—	0 15 0	79,351	Transvaal	33, Cornhill.
Joe's Luns G	1 1/2 2 1/2	2 1/2	1 0	—	1 0 0	87,404	De Kaap	11, Queen Vic-st.	Trans. Land G	5/8 6/8	6/8	1 0	—	0 15 0	169,939	Transvaal	33, Cornhill.
Johannesburg For	3 1/2 3 1/2	3 1/2	1 0	12 1/2 Nov. '93	1 0 0	2,000	Witwatersdr.	Johannesburg.	Treasury G	13/9 16/3	16/3	1 0	7 1/2 May '94	1 0 0	26,000	Witwatersdr.	Johannesburg.
Jubilee G	4 1/2 5 1/2	5 1/2	1 0	30% Apr. '94	1 0 0	30,000	Witwatersdr.	8, Old Jewry.	Un. Ivy Reef G	15/- 17/6	17/6	1 0	—	1 0 0	45,070	Transvaal	110, Cannon-street
Jumpers G	4 1/2 4 1/2	4 1/2	1 0	10% Jan. '93	1 0 0	100,000	Witwatersdr.	29, Holborn-viaduct.	Un. Langlaagte	1 1/2 1 1/2	1 1/2	1 0	—	1 0 0	100,000	Witwatersdr.	23, St. Swithin's-lane
Kimberley D	1 1/2 1 1/2	1 1/2	1 0	—	0 10 0	98,672	Kimberley	19, Finsbury-circus.	Van Ryn G	1 1/2 1 1/2	1 1/2	1 0	—	1 0 0	99,810	Witwatersdr.	1, Crosby Square.
Kimberley Indit.	7 1/2 8 1/2	8 1/2	1 0	—	1 0 0	125,000	Kimberley	2, Drapers-gardens.	Victory Hill G	4 4 1/2	4 1/2	1 0	—	1 0 0	100,000	De Kaap	Portland House, E.C.
Kleinfontein (N) G	1 1/2 1 1/2	1 1/2	1 0	—	1 0 0	150,000	Witwatersdr.	8, Old Jewry.	Village Main Reef	4 4 1/2	4 1/2	1 0	—	1 0 0	137,000	Witwatersdr.	8, Old Jewry.
Klerksfontein G	1 1/2 1 1/2	1 1/2	1 0	—	1 0 0	150,000	Transvaal	110, Cannon-street.	Virginia (New) G	3/- 3/6	4/-	1 0	—	0 9 0	48,335	Transvaal	28, Bridge-row, E.C.
Langlaagte Est. G	4 1/2 4 1/2	4 1/2	3 0	12 1/2 Mar. '94	1 0 0	467,000	Witwatersdr.	59, Holborn-viaduct.	Wassau G	4 1/2 5 1/2	5 1/2	1 0	10% Nov. '91	1 0 0	100,000	Gold Coast	85, Gracechurch-st.
Do. Royal	2 1/2 2 1/2	2 1/2	1 0	5% Sept. '93	1 0 0	100,000	Witwatersdr.	2, Drapers-gardens.	Wemmer G	5 1/2 6 1/2	6 1/2	1 0	—	1 0 0	55,000	Witwatersdr.	19, Bury-st., E.C.
Elabon-Berlyn G	2 1/2 3 1/2	3 1/2	2 6	—	2 6 0	88,233	Lydenburg	110, Cannon-street.	Witwatersdr. D	20/8 21/8	21/8	1 0	—	1 0 0	250,000	Witwatersdr.	19, Bury-st., E.C.
London & S. A. Ex.	—	—	0 10	3/- June '94	0 10 0	100,000	S. Africa	19, Finsbury-circus.	Woluter G	2 1/2 3 1/2	3 1/2	1 0	2/- Apr. '94	1 0 0	120,000	Witwatersdr.	Warnford-court.
Luispaars Vlei Est	9/- 10/-	11/-	1 0	6% Mar. '90	1 0 0	319,293	Witwatersdr.	Warnford-court.	Wolverand G	6 1/2 7 1/2	7 1/2	1 0	—	0 18 0	102,083	Transvaal	5, Co. thall-buildings
Do. do. do.	3 1/2 4 1/2	4 1/2	1 0	—	0 10 0												



## REPORTS FROM THE MINES.

We find it necessary to announce that, owing to the vast numbers of mining reports, and items of mining intelligence which reach us invariably every late-up to, and frequently after the time of going to press—it is impossible to guarantee the insertion of all of them in the issue in which, in ordinary course they should appear. We always endeavour, however, to make this important feature as complete as possible, and if the secretaries of mining companies, mining captains, and others would kindly make an effort to let their reports, etc., reach us early on Fridays, when it is not possible to let us have them earlier in the week, their doing so would go far to ensure their insertion, and to promote the completeness of our Mining Intelligence.

### BRITISH MINES.

**GREEN HURTH.**—June 15th: There is no material change to note in any of our workings since my last report.—South-west Branch. The south forehead maintains its value; worth for lead 3 tons per fathom. The slope in the level sole is worth 1½ tons per fathom.—Annie's Vein. The south forehead continues poor. The heading behind the forehead is yielding its usual quantity of ore; worth 2½ tons per fathom. The south drive from the sump on Annie's vein is worth for lead 2 tons per fathom.—W. Gray.

**GREAT LAXEY.**—F. Reddcliffe, June 20: The pumping of the accumulated water has gone steadily and satisfactorily on, until now it is so nearly in fork that we expect to be able to resume the driving of the 295 fathoms level to-morrow morning. The throw of the lode, caused by a slide in the 278 end, was greater than in the level above, being fully 3 fathoms, and it is only just now the crosscut has reached the hanging or eastern part, and the northward bearing picked up. The value of the lode at this point is £10 per fathom. Crosscutting towards the lode at the bottom of Dumbell's shaft is going on, as is also the putting in of casing, &c., from the 278 to the new bottom level to facilitate the removal of the stuff by the larger drawing machine. The only thing to note in the 255 end is that lately a little water has been coming from it, but the rock as to appearance remains comparatively unaltered. The value of the slopes will average from £10 to £12 per fathom. Other places without change.

**LEADHILLS.**—W. H. Paul, June 18: Brown's vein. The 160 fathom level south of Jeffrey's shaft is going ahead steadily in a vein 5 feet wide, strongly mixed with quartz and spar but no ore to value at present. In the 160 fathom level driving north of Wilson's shaft the vein is over 4 feet wide and contains a rib of spar 18 inches wide, but without ore. In No. 2 winze sinking below the 145 north of Wilson's shaft the vein is 4 feet wide, showing a little spar but at present producing no mineral. A branch on portion of vein has been intersected in crosscutting east at the 145 north of Jeffrey's shaft, which showed strong spots of lead ore. Crosscut is being pushed on to further prove this point. The vein in No. 1 stope over the 145 north of Jeffrey's shaft will produce 30 cwt. of ore per fathom. No. 2 stope over same level north is worth 25 cwt. of ore per fathom. The stope over the 130 north of Jeffrey's shaft has been suspended, lode having become unproductive. The vein in the 115 fathom level driving north of Jeffrey's shaft carries a mixture of spar, but stone of too dark a character for the production of ore. No. 1 stope above the 115 north of Jeffrey's shaft is worth 25 cwt. of ore per fathom. No. 3 stope is yielding but little ore to day. It should, however, improve when extended some 6 feet further south. The crosscut eastwards towards Raik vein is going forward regularly, and ground more favourable for driving than of late. The vein in the 100 fathom level driving south of Wilson's shaft continues too soft and dried for producing ore. The eastern portion of vein being extended on at this level south is opening out wider, contains a good mixture of spar, and likely to improve. In No. 1 stope over drift above the 100 south of Wilson's shaft the vein is 3 feet wide producing 30 cwt. of ore per fathom. In No. 2 stope over same drift the vein is worth 40 cwt. of ore per fathom. The vein in No. 1 stope over the 85 south of Wilson's shaft, will produce 45 cwt. of ore per fathom. In the cross cut driving east near forebreast of the 70 south of Wilson's shaft another cross joint has been cut, but so far as proved is not of much importance. The vein in stope over the 50 south of winze is worth 60 cwt. of ore per fathom. In the stope below the 35 south of flat rod shaft the vein is 4 feet wide producing 40 cwt. of ore per fathom. At Grippis adit level driving southwards, Sarrowwoole vein continues of a very promising character, and carries a branch of spar and barytes some 18 inches wide.

**NEW MINERA.**—275 yard level, stope near forebreast, two men. Lode worth 3 tons blende per fathom, estimated to produce 6 tons per month. Stope in bottom of level west crosscut, four men. Lode worth 3 tons blende per fathom, estimated to produce 10 tons per month. Driving west of crosscut on middle lode. Some lead ore and blende in lode and the level may open up further ground for stoping. 295 yard level west of winze, two men on tribute. Lode worth 2½ tons of blende per fathom, estimated to produce 5 tons per month. West of sump, four men on tribute. Lode worth 2½ tons blende per fathom, estimated to produce 10 tons per month. West of sump in bottom of level, four men on tribute. Lode worth 4 tons blende per fathom, estimated to produce 15 tons per month. 315 yard level driving east of main crosscut, as last reports 1. West of incline shaft, two men on tribute. Lode worth 2½ tons blende per fathom, estimated to produce 5 tons per month. East of incline shaft, six men. Lode worth 4 tons blende per fathom, estimated to produce 20 tons per month. Near forebreast west, four men on tribute. Lode worth 3 tons blende per fathom, estimated to produce 10 tons per month. East of sump, two men on tribute. Lode worth 3 tons blende per fathom, estimated to produce 5 tons per month. East and west of sump in bottom of level, two men on tribute. Lode worth 3 tons blende and lead ore per fathom, estimated to produce 5 tons per month.—Dressing. 30 tons blende and 12 tons lead ore have been sent off since last report, making the total quantity sold 4165 tons blende, and 1720 tons lead ore.

**PRINCE OF WALES.**—S. Roberts, J. Prowse, June 20: During the week better progress has been made in driving the crosscut at the 193 fathom level, and the indications are very encouraging indeed. The ground is more jointed and letting out water freely.

**POLBERRO.**—June 18: The rise above the 26 west is holed to the 20 fathom level, and we have resumed the driving of the 26 end west. There is no change in the 26 east since the meeting. We have opened about 12 feet on the lode recently intersected in the 26 crosscut north. The lode is 5 to 6 feet in width. We have to-day sampled a parcel of 9 tons of stuff from this lode, which produced 40 lbs. of tin to the ton. Since the meeting we have done the necessary dialling for setting out the work in connection with the sinking of Trevaunance shaft, and have set contracts to rise and sink to three paces of men (one pace of nine and two of six men each) to complete the shaft to the 26 fathom level.—(Signed) Charles Thomas, John Harper.

**WEARDALE.**—Report on Weardale Company's mines for the week ending June 16: Groverake. Adamson's drift west, vein 8 feet wide, divided at present, mixed with stone, poorer in ore, worth 12 cwt. per fathom. Groverake cubic fathom, stopes worth 12, 14, 12, 14, 14, 12, and 12 cwt. per fathom. The tribute men have raised 4½ bings during the week.—Boltbarn. Stopes above Watt's level in vein north 20 cwt. per fathom, in north flats worth 18 cwt. per fathom, in south flats worth 16, 34, 28, 30, 20, 24, 16, 26, 18, and 18 cwt. per fathom.—Greenlaw. Nattrass gill drift, stopes worth 14, 14, and 14 cwt. per fathom. Lee's sump under stopes worth 28 cwt. per fathom. The tribute men have raised, in Greenlaw's vein and strings, 32 bings of ore for the week.—Sedling. The 64 level east has been driven 1 26 fathoms this week, vein in place looking rather better. South vein, Stobbs' drift, vein worth 14 cwt. per fathom. Driving east from shaft foot in near limestone, strong vein, hard at present, but looking better for ore. Stopes in 64 level east worth 14, 16, 14, and 18 cwt. per fathom. Stopes in 64 level west worth 14 cwt. per fathom. Ore raised for week, 85 tons; ore dressed for week, 143 tons; ore and slag melted for week, 155 tons, producing 83 tons of pig lead.

**WHEEL AGAR.**—June 16. Setting Report. New North Lode. Robert's Engine Shaft. Since our last we sunk this shaft perpendicular at the required depth for skip under the bottom plot, in order to facilitate the filling and discharge of stuff, at the same time continuing the sinking on the line of lode and cutting across to ascertain its width, which has proved so far as seen to be 12 feet wide, with more lode to the south. We previously stated that other lodes and branches seen in the crosscut at the 285 fathom level south of the main lode would drop in on this.—The New North Lode, which has a dip south also 3 feet in the fathom. We have the evidences to establish the belief by almost draining all the water from the level or lodes referred to, thus showing a connection. The shaft has now obtained a depth of 24 feet below the 320 fathom level, sinking by 18 men at £50 per fathom, and worth for tin £45 per fathom for the part of lode carried for width of shaft 8 feet and 12 feet long. The 320 fathom level to drive west by seven men and machine at £11 per fathom. Lode more than full size of end, and worth for part carried £15 per fathom. The rise in the back of this level is communicated with the winze south from the level above, thus giving good ventilation and opening up a section of ground for stoping. This point is working by nine men at 4s. per ton of stuff. Lode worth £15 per fathom for tin. The 320 is extended east of shaft 14 fathoms, and is being driven by seven men and boring machine at £12 per fathom. The lode is composed of quartz, chlorite and mudic, and letting out water freely, and worth for tin £12 per fathom. The 312 is extended east of crosscut 8 fathoms, being driven by seven men and boring machine at £12 per fathom. The lode in the present end is disordered by a crosshead interfering with its make and yield, but this we look at as only temporary.—312 fathom level west. The men and machine at this point have been employed sinking the winze over the rise already referred to. We have some preparative work to carry out before resuming the drive of this end, which will be completed as rapidly as possible.—Great lode. At the 270 fathom level we have cut across this lode 30 feet; its composition and general make up for the whole width is very promising, but at no point does it correspond with the lode in the stope above in character and yield; its average produce for the width mentioned is worth about 28 lbs. of tin to the ton. At the present price of this commodity it will not pay to work. We have two stopes working on this lode, one in the bottom of the 255 by 12 men at 5s. per ton of stuff. Lode worth for arsenic and tin £15 per fathom. One stope in the bottom of the 245 by 12 men at 5s. per ton of stuff, worth for tin and arsenic £13 per fathom.—Tribute. We have 13 tribute pitches at work by 51 men at an average tribute of 8s. 10d. in the £. We hope to complete the repairing of boiler and erection of new stamps frames to the north axle of stamps by the end of next week, and thereby increase the returns of tin, &c. All the machinery underground and at surface is in good order and working well.—William Hambly, R. Daniel, M. D. Penhale.

### COLONIAL, INDIAN, AND FOREIGN MINES.

**ANGLO-MEXICAN.**—Writing on May 24th with regard to the gold mine at San Jose de Gracia, the manager says:—Muerto Tunnel was advanced 60 feet during the week under report, making the total length 1041 feet. At the point where this tunnel was connected with Jesus Maria vein we have a fine body of ore. I am making preparations to open up stoping ground at this point. New Main Tunnel was advanced 30 feet during the past week, making the total length of same up to date 648 feet. I have nothing of importance to report to you in connection with our work here. North drift from upraise No. 13 was advanced 8 feet during the week, making its total length 13 feet. I am pleased to say that this drift has reached a splendid body of ore, the vein being fully 5 feet wide, the ore being of a high grade. Upraise No. 15 is about 200 feet north of this upraise, and as the former is also in first class milling ore it is to be supposed that we have a fine body of high grade milling ore between these two points. South drift from upraise No. 13 has advanced 8 feet during the week I am reporting on, making the total distance drifted up to date 39 feet. This drift has now been connected with upraise No. 12. The vein here will average about 8 feet in width, and carries milling ore of a good grade. From upraise No. 15 we have started drifts to the north and south during the past week. The upraise was carried up on the footwall side of the vein, and it is from here that the present supply of shipping ore is being extracted. The drift to the south carries about 5 feet of ore, 1½ feet of which is shipping ore, while the remainder is milling ore, which I estimate will assay about \$200.00 in gold per ton. The vein here has very favourable indications of continuing of the same width, and promises to turn out a large amount of good milling and shipping ore.

**KAPANGA.**—W. H. Argall, May 8: I beg to hand you report for four weeks ending of 5th inst.: Larnach's engine shaft has been sunk during the month 14 feet by 12 men; total depth, 676 feet. During the sinking we have cut through several small branches of quartz varying in width from 2 to 5 inches, bearing about 15° east of north and underlying north west at an angle of 45°. About 4 feet from present bottom of shaft we struck another vein composed of quartz and peg, letting out water freely. This is running about north and south underlying west at an angle of about 60°. The country has changed for the better and highly mineralised throughout. The shaft has been timbered to the bottom, cage road built, and ladder road fixed. We have also cut chambers for cistern, &c. Everything is now ready for the castings, which will be placed during the next few days if all goes well. McNeil's rise above the 300 feet level on Scott's footwall portion has been put up a further length of 10 feet; total distance, 56 feet. Reef 2 feet wide with well-defined walls; at intervals we saw strong colours of gold, and we believed that before this something good would have been encountered, but we have been disappointed again. We have crushed 20 tons, which yielded 11 ounces 5 dwts. of gold, all the machinery and pitwork working well.—Coromandel Section. No. 6 block. Three men are working here; during the driving they intersected a reef bearing north-west and south-east, dipping north-west, average width 1 foot, carrying good walls. The quartz extracted shows gold freely. They are now crushing about 1 ton of average dirt and 5½ lbs. of specimen. The result, no doubt, will be good. This reef belongs to the tributaries in the No. 15 block, as the level was obliged to be driven through this ground before getting into the No. 6 block.—No. 7 block. Two men have driven 20 feet on a reef bearing north-west and south-east; on another small branch they drove 18 feet in an easterly direction, which produced rich gold. They crushed 1½ tons of quartz and 27 lbs. of specimen, which together yielded 110 ounces 10 dwts. of melted gold.—No. 15 block. Two men were occupied during the month extending their crosscut, which is now in 190 feet. Now that a gold-bearing reef has been discovered in this ground by the tributaries on No. 6 block, they are preparing to develop the same at once. The various other blocks are being worked by ten men, with fair results.

**PESTARENA UNITED.**—Mid-monthly report, June 16, W. Henwood Trelease, T. Henry Meesa: Peschiera and Acquavita Mines. No. 1 lode. In the 55 east the lode is at present sterile, the ore having been cut off by a cross branch, but in a few days it will most probably improve and be as productive as formerly. The lode in the 70 end east is well defined, and a branch of quartz is coming in at the bottom, rising to nearly half the height of the end, but does not contain sufficient pyrites to value. The winze under the 70 west carries 40 centimetres of ore, and produces 10 tons per fathom, worth 2 ounces per ton. In the end west the A and B lodes have been cut off by the crosscourse. It has been temporarily suspended pending the result of the crosscut, and the men have been put to sink on the last ore shoot passed through. The 140 end west on No. 5 carries about 4 centimetres of ore on the hanging wall; the remaining part of the lode is quartz averaging 30 centimetres in width. Crosscut. Nothing of importance has yet been met with in either the 70 or 130. The stopes continue to yield as was reported on the 4th inst.—Stabili Mine. The lode in the end south is 50 centimetres wide in the bottom narrowing to 10 centimetres in the roof; it is mixed throughout with fine branches of pyrites assaying 2 dwts. per ton. In the Anna level end north the lode is well defined and carries a little pyrites assaying 1 dwt. per ton.—Kint Concession. The men

are still employed stoping in the bottom of the Guja adit preparatory to laying a tram road. We hope to finish this work during the first week in July.—Val Toppa. The lode in the Carboniera D'Alberto end north east is 60 centimetres wide and seems to be carrying more galena than when intersected. A mill trial will be made and its value reported. The surface and underground machinery have been kept in their normal state of repair. The water in the Peschiera shaft is now 18-60 metres under the 140 fathom level. The Pozzono pumps since restarting have forked 3 metres and the lift will probably be lower on the 18th inst.

**NEW VIRGINIA.**—Manager's fortnightly report, dated May 19, 1894:—Progress during past fortnight has been very good, as following, particulars will show.—Curtis's shaft. I have set contract to sink this shaft, size 10 by 6, 60 feet, for £150, contractors to pay all costs of necessary supplies and labour. It will be done quicker and cheaper this way.—New trial shaft. Driving south from bottom of shaft has been extended another 6 feet; total length, 28 feet. Reef still wide and good, panning excellent, and shows visible freely, and as reef is holding on as good, and getting near to our southern boundary, we have pegged another claim, as per cable sent you on 15th inst., to ensure length and depth to work upon. Miners' house stands upon this ground (see plan). A stope just began in back of this drive is also producing good quantities of rich ore. I have resumed driving cross cut from Curtis's shaft; present length 180 feet, leaving about 35 feet more to drive to cut reef and communicate with south drive from trial shaft, and as soon as communication is effected shall tram all ore direct through No. 1 adit in place of hauling it to surface as we have to do now.—Good Enough Section. No. 1 Reef. In sinking and stoping the bottom for 26 feet in length and 12 feet deep, the reef has given a fair quantity of good ore, and is apparently holding in depth. No. 2 Reef. This trial shaft has been sunk another 5 feet; ground hard reef, not so productive for the moment, being too much mixed with patches of hard bar and casing, still panning a little, and I hope in sinking shall get into more settled ground.—No. 3 Adit. We have driven a cross cut 9 feet, making total length 61 feet, and have just cut into our reef again, which has been thrown out of its course, but will I expect continue a more regular course, and give fair milling ore in good quantities.—Watercourse. A considerable amount of hard work has been done, and is of a good substantial nature, as it is being out into hard rock, and not in soft mud banks as was done before, so will be perfectly safe. Since the receipt of the above report a cablegram has been received from Captain Hodge announcing the completion of the negotiations for the purchase of the intervening property, known as the "Heather Bell (six) claims."

**ELKHORN.**—Copy of Mr. C. A. Molson's monthly report for May: Mine: Ore breaking department. 650 feet level south back stope. The ground is stoped away to the south end winze.—No. 2 stope. The vein is 2 feet wide, and the value 55 ounces. The ore is mostly dry quartz, which is sent direct to the mill.—750 feet level north, Crosscut raise stope. The vein is 3 feet wide, and the value 35 ounces. The ore is dry with some bunches of lead.—Inside stope. The vein is 10 feet wide, and averages 44 ounces. A raise is being run at the north end to connect with the bottom of the 650 feet north under-hand stope.—850 feet level north. The vein is 6 feet wide, and assays 45 ounces. Some bunches of lead ore occur in the quartz. A raise is being put up here also to open up the stope and facilitate the handling of timbers.—950 feet level north, south end. The vein is 5 feet wide, and assays 39 ounces. The ore is lengthening out to the south, and the general appearance of the stope is better.—Back stope. A raise has been started here for the same reason. Connection will be made on the ore with the 850 feet north stope. The width is 5 feet and assays 30 ounces with ore on the foot.—1050 feet level South. The vein is 4 feet 6 inches wide, and assays 30 ounces.—North of the Shaft, Outside Stope. The vein is 4 feet wide, and assays 46 ounces.—Inside Stope. The vein is 2 feet 6 inches wide, and assays 28 ounces. Connection has been made at the north end with the 950 feet level.—1150 feet level South, South End Stope: The vein is 18 inches wide, and assays 35 ounces. 1250 feet level North, Raise Stope. The vein is 6 feet wide, and assays 56 ounces. The chute is 10 feet long, and the ore of the milling class.—1350 feet level South, Footwall Crosscut. At the north end the vein is 30 inches wide, and assays 220 ounces, with from 10 per cent. to 20 per cent. lead. At the south end the ore has been stoped to the sand rock.—Centre Stope. The vein is 13 feet wide, and assays 33 ounces.—South End Stope. The vein is 10 feet wide, and assays 42 ounces. The usual bunches of high grade lead ore are found in the dry quartz.—1450 feet level North. The vein is 2 feet wide, and assays 39 ounces.—South of the Shaft, Back Stope: The vein is 8 feet wide, and assays 100 ounces, with 10 per cent. lead.—Centre stope foot of main raise. The vein is 8 feet wide. On the footwall there is 30 inches of dry quartz, assaying 25 ounces, while the upper portion of the vein is smelting ore carrying 110 ounces and 12 per cent. lead.—South end stope. The vein is 3 feet wide, and assays 28 ounces.—1550 feet level south raise stope. The vein is 3 feet 6 inches wide, and the value 108 ounces and 5½ per cent. lead.—Prospecting department. 1450 feet level south.—A crosscut and raise from the main stope is being put in to tap and drain the bottom of the 1350 feet footwall crosscut ore body.—1650 feet level south.—Previously reported 660 feet; advanced in May, 205 feet; total length 1st June, 865 feet. Several bunches of ore have been passed through during the month, the most important of which is 3 feet wide and 10 feet long, the assay value being 80 ounces. This ore occurs at a point 705 feet south of the shaft. Work on the drift has been suspended.—1650 feet south raise. This work has been started to connect with the 1550 feet level. The advance during the month was 12 feet.

**THE Perth Inquirer** of May 18, speaking of Bayley's Reward Mine says:—"The official estimate of the value of Bayley's Reef at the 200 feet level is 5 ounces, but this is probably rather above the mark. The battery is all ready to start, but must wait till the dam fills. The reef at the 200 feet level is hard white quartz, without any sign of ironstone or the mullocky leader, about which so much has been said. The gold is coarse and free, and the stone carries a lot of iron pyrites, being much mineralised in places."

### NEW ISSUE.

#### THE LAGUNAS NITRATE COMPANY, LIMITED.

The share capital of this company is £900,000, divided into 180,000 shares of £5 each, of which 60,000 shares are reserved for the vendors. This portion has been formed to acquire a portion (being about 200 Estacas of 40,000 square varas (Spanish yards) each in extent) of the well-known nitrate grounds of the Lagunas Syndicate (Limited), and which are believed to contain the richest deposits of caliche in the Province of Tarapacá, Republic of Chili, together with the oficina recently erected thereon. This property is now in direct communication with the Port of Iquique, over the lines of the Nitrate Railways Company (Limited), and the Lagunas Syndicate has at a considerable cost extracted a large quantity of Caliche, and erected on the grounds to be acquired by the company an oficina of the most improved modern construction, capable of manufacturing 300,000 quintals of nitrate of soda per month. The business will be taken over as a going concern as on the 30th of June, 1894. The company will have the benefit of the contracts entered into by the Syndicate previously to the 30th of June, 1894, for the supply of nitrate, and the company will be bound by, and will have the benefit of, the agreements entered into by the Syndicate with the Nitrate Railways Company (Limited), for the carriage of nitrate and goods to and from Iquique; with Messrs. North and Jewell, as Port Agents in Iquique; and with Messrs. W. and J. Lockett, as Mercantile Agents in England; and will also take over the services of the whole or greater part of the staff of the Syndicate in connection with the oficina, which is now already producing nitrate on a very important scale. In consequence of the great number of applications for shares, the directors have decided to close the subscription list at noon to-day (Saturday) for the United Kingdom. The list will remain open for applications from the Continent until Monday evening.



**AUSTRALIAN BROKEN HILL CONSOLS.**—The mining manager reports by mail for the fortnight ended May 10: Block 96, main shaft, 280 level east prospecting drive, No. 4 rise, driven 9 feet; total, 48 feet. An important discovery has been made here; in following up a pyrites vein on the lode the latter was found to suddenly widen, yielding native and hornsilver, sulphide, chloride, and iodide of silver, assaying in bulk 17,500 ounces of silver per ton. The vein continues, and is being vigorously followed, and looks very promising. The character of the ore, lode, and enclosing country rock is the same as that possessed by the large deposit of 1891 when first met with.—280 level west, prospecting drive. Stopes below level driven 10 feet. The lode continues to look promising, and has yielded some good galena. A little iodide of silver has been seen here. Incline sunk 3 feet 6 inches; total, 550 feet 6 inches. The lode is still rising, and consists of calcite and carbonate of iron showing a little galena. Water is not quite so strong. No. 5 level west driven 5 feet, total 35 feet. No change. No. 5 level east driven 9 feet, total 34 feet 6 inches. No change. Men have been transferred to rise at the point where the deposit of native silver was met with in No. 4 level east. No. 4 level east driven 12 feet, total 201 feet. The lode is improving in size and character, showing galena and Fahlerz, the latter assaying 3689 ounces 15 dwts. 8 grains silver per ton.—No. 1 Rise from No. 4 Level East. The lode here shows a little little fahlerz. No. 3 Level east driven 6 feet. No change. The men have been transferred to rise on the vein of pyrites in the vicinity of the rich ore found in the 280 level east. The point chosen is in the prospecting drive further east than No. 4 rise. Have dressed parcel of ore weighing 2½ tons, and assaying silver 52 ounces, lead 68 per cent. per ton.—Note. The quantity of rock mined during the fortnight was 2373 cubic feet.

**BALAGHAT MYSORE.**—Jos. Pryor, May 29: Ogle's shaft. Since completing the cutting of the ground for the cistern at the 800 feet level we have cut the necessary hitches, &c., for the timber to carry same; and I am glad to say have also fixed the cistern and the men are now engaged in dropping the bottom parts of the new bucket lift, which will be completed and set to work as quickly as possible. The shaft has also been further deepened 4 feet 6 inches, or 16 feet below the level. The lode, although of a promising appearance, does not yet produce any quartz to value, it being just now only about 2 inches wide. In my last I spoke of the 800 feet level north having been communicated with the levels driven from the bottom of the No. 1 winze at the 730 feet level. These levels were a little above the main level, and consequently we are obliged to stop the bottoms as well as enlarge the sides of them; this is being done, at the same time the end has also been advanced 9 feet 9 inches, or 140 feet 6 inches from the shaft. The quartz is 14 inches wide and assays 1 ounce 1 dwt. 23 grains of gold per ton. The No. 1 winze in the bottom of this level has been sunk 11 feet, or 15 feet below the level. The quartz is 1 foot wide and assays 2 ounces 1 dwt. 5 grains of gold per ton. The stopes in the back of this level yield quartz of from 12 inches to 14 inches wide, and assay 2 ounces 2 dwts. of gold per ton. The stopes in the bottom of the 730 feet level north yield quartz of from 6 inches to 1 foot wide, and assay on an average 1 ounce 19 dwts. 22 grains of gold per ton. The stopes in the back of this level produce quartz of from 9 inches to 1 foot wide, and assay on an average 1 ounce 5 dwts. 10 grains of gold per ton. The stopes in the bottom of the 660 feet level north yield quartz of from 9 inches to 1 foot wide, and assay on an average 15 dwts. 9 grains of gold per ton.—Haine's shaft. The donkey pumps at this shaft are not now capable of satisfactorily dealing with the increase of water recently met with, and consequently our progress is often retarded through the water being in. We are, however, pushing forward as fast as circumstances will admit with the cutting of the necessary ground at the 870 feet level, and hope in the course of a day or so to resume sinking the shaft. The quartz in this shaft is from 1 foot to 1 foot 6 inches wide, and assays 7 dwts. 14 grains of gold per ton. In addition to cutting the above ground we have also brought the double skip road to within a few feet of the bottom of the shaft, as well as driven the 870 feet north 5 feet 6 inches, or 8 feet 6 inches from the shaft. The quartz is 14 inches wide and assays 5 dwts. 1 grain of gold per ton. The 870 feet level south has also been extended 2 feet 6 inches or 5 feet 6 inches from the shaft. Here the lode is at present somewhat disordered, but will I think very soon right itself. The quartz assays 9 dwts. 1 grain of gold per ton. The 800 feet level south has been advanced 16 feet 6 inches, or 214 feet 6 inches from the shaft. The quartz is 1 foot 6 inches wide, and assays 12 dwts. 1 grain of gold per ton. We hope shortly to communicate this level with the levels from the bottom of the midway winze at the 730 feet level; this will not only lay open a fairly good section of stopping ground, but will also considerably improve our ventilation which is just now very much needed. The quartz in the winze in the bottom of this level is 1 foot wide, and assays 5 dwts. 15 grains of gold per ton. The stopes in the back of this level produce quartz of from 1 foot to 18 inches wide, and assay on an average 9 dwts. 12 grains per ton. At the bottom of the midway winze in the 730 feet level south we have been compelled owing to the foolishness of the air to suspend the drivages of the levels north and south. We, however, as intimated above, hope within the next fortnight or so to communicate them with the main or 800 feet level south of the shaft. The quartz in these drives is from 9 inches to 1 foot wide, and assays on average over half an ounce of gold per ton. The stopes in the back of the 730 feet level south yield quartz of from 1 foot to 15 inches wide, and assay 12 dwts. 3 grains per ton.—Tennant's shaft. This shaft has been sunk 3 feet 2 inches or 46 feet 8 inches below the 350 feet level. The ground has lately become harder for sinking, and the quartz has become somewhat disordered and pinched, it being now only from 8 inches to 1 foot wide. It, however, has considerably improved in value and assays 1 ounce 6 dwts. of gold per ton, and I am hoping it will ere long again considerably improve in size. The 350 feet level north has been driven 11 feet, or 74 feet 9 inches from the shaft; here the lode has recently improved, both in size and value; the quartz being now nearly 2 feet wide, and worth 10 dwts. 1 grain of gold per ton. The contractor and coolies engaged in the rise in the back of this level have not been working at all satisfactorily, and were consequently dismissed. A new lot of men have just started to work; I hope they will do better. The rise is now up 8 feet above the level. It produces quartz of 2 feet wide, and assays 9 dwts. of gold per ton. The 350 feet level south has been extended 16 feet 3 inches, or 85 feet from the shaft. The quartz has of late been more or less split into small branches, which are intermixed with country rock. The main branch of quartz is from 9 inches to 1 foot wide, and assays 4 dwts. of gold per ton. About 15 feet behind the present end we have just started to sink a winze. It is now down 1 foot below the level. The quartz is about 1 foot wide, and worth 4 dwts. per ton.—Surface. The masonry contractor has commenced building the necessary additional accommodation to the Italian quarters, and promises to get it completed at an early date. A couple of days ago a rather severe storm burst over the camp, but beyond more or less dismantling a few of our buildings it did not do any very serious damage to us. The general surface work is being proceeded with in the usual way, and is progressing satisfactorily.

**BONANZA GOLD MINES.**—The following report has been received from the manager, under date May 27: Since writing you on the 13th inst. we have driven in the No. 1 raise 12 feet, then, reaching a point where stopping could be done advantageously, I put the men to drifting towards raise No. 2 at a point 70 feet above No. 3 tunnel. We have driven on this 25 feet, with an average of 20 inches of ore—all of it good, and much of it very rich. In raise No. 2 we have driven 52 feet. We have cut through the ore chute, which I had expected to do at an earlier date, as you will see from the map you have that the raise goes through it at an angle to its dip in the vein, and are now driving through ledge matter to make the connection with tunnel No. 2, and supply air for stoping. This raise for 220 feet has been continuously in ore, and for 180 feet it has been never less than 3 feet wide, and at several points 7 feet and 8 feet. Much of it has been carried narrower than the vein, so that I cannot tell what the average width of quartz is. About 25 feet below where we left the chute I broke into the roof, and exposed 9 feet 6 inches of quartz without reaching the hanging

wall, but did not continue, as I needed the men elsewhere. All of the ore in this raise will mill \$8 per ton, while much of it is richer. In tunnel No. 2 we have driven 45 feet; this is still in ledge matter, with occasionally good quartz. I hope by the middle of next week to have the connection with tunnel No. 2 completed, when I can put all the men stoping to good advantage, and with good air. I have also started a drift from raise No. 2 to connect with that from raise No. 1, and have driven 20 feet on it. The connection should be completed next week, and will give me good air and ample ground for stoping. The engineer who takes charge of the repairs to the tramway arrived on the 18th inst. The mine was so filled with ore that we had necessarily broken that I decided to run the tram in its present condition until I could empty the bins. This I have done, and it has proved that when the repairs are completed we shall have no trouble with the tram, and, at the same time, has supplied me with ore to run 20 stamps while the repairs are being completed. I started 20 stamps yesterday, and they are running most satisfactorily. So far as I can now judge, the ore will come fully up to my expectations as to its value. The repairs should be made in three weeks, when I shall be able to report all 40 stamps running. Meanwhile we can keep the 20 going. My assay outfit should arrive to-morrow, and then I can report more definitely as to values.

**HARRIETVILLE.**—Fortnightly report of Mr. T. G. Davey, superintendent, dated 14th May: Mons Meg Mine. Drive north of main winze 100 feet below tunnel D advanced 13 feet, total 89 feet. Lode much disturbed and barren. We are about to crosscut east from this level. South drive at same level extended 18 feet, total 74 feet. Lode somewhat disordered, but slightly auriferous. Have commenced to crosscut west at this point. Rise at back of drive south of tunnel J communicated to 50 feet level. Lode 2 feet wide, but poor.—Stopes. Lode in stopes at back of drive south of tunnel D 15 feet wide, and of payable quality, although of low grade. Underhand stopes at 290 feet level below J. Lode 3 feet wide, and carrying visible gold. Lode in underhand stopes at 44 feet level below J from 3 feet to 10 feet wide, carrying a vein 18 inches wide of payable stone. Stopes on No. 8 shoot at back of tunnel J vein on hanging wall 3 feet wide of payable quality. The remainder of lode is poor.—Returns. We cleaned up on the 1st inst. for the following returns, viz.:—Mons Meg, 512 tons, yielding 147 ounces 9 dwts. 19 grains of gold; pyrites works, 59 tons for 31 ounces. Total for four weeks, 178 ounces 9 dwts. 12 grains melted gold.

**MYSORE REEFS.**—Fortnightly report of Captain Scantlebury, mine agent, dated May 29: Underlie Shaft. The 250 feet level north has been extended 13 feet, now 29 feet 6 inches from shaft. The lode is improved. I think we are getting into the shoot of ore that dipped north out of the shaft. Some stones of quartz containing visible gold came up this morning, and a sample gave 10 dwts. of gold to the ton. In a blast or two we shall see more of it, when no doubt I shall cable you the value and width of lode. 250 feet level south has been advanced 13 feet, now 26 feet 6 inches. There is also a slight improvement in the end, more quartz against the hanging wall, which is worth 4 dwts. of gold to the ton. On the 1st of next month I shall be obliged to remove the drill from the end to cut the plat. This must be done in order to prepare for the sinking of the shaft.—Vertical shaft. The 200 feet level north has been extended 16 feet 6 inches. The lode is 2 feet wide, composed of quartz, iron, and arsenical pyrites, three samples have been taken with the following result:—No. 1, 2 ounces 4 dwts.; No. 2, 2 ounces 12 dwts.; No. 3, 2 ounces 13 dwts. 16 grains. 200 feet level south has been advanced 17 feet, now 66 feet from shaft. The lode is 1 foot 6 inches wide, composed of quartz containing a little iron pyrites. Four samples have been taken since my last, with the following result:—No. 1, 18 dwts. 12 grains; No. 2, 2 ounces 6 dwts.; No. 3, 1 ounce 12 dwts.; No. 4, 3 ounces 6 dwts. 15 grains. By these two levels we are opening up a good piece of stopping ground; the lode is recovering itself in the 250 north of the underlie shaft. I do not think there is much doubt but what most of the lode between the two shafts will be stoped away.—Trial shaft on the western run of old workings. The crosscut east to intersect the old workings has been advanced 10 feet, now 33 feet from shaft. We are, I think, very near the ancient workings from the appearance of the ground in the crosscut.—Surface. We are busily engaged with the buildings in connection with the stamps and other works.

**MYSORE GOLD.**—R. Hancock, May 29: Mining operations for the fortnight ending May 21: 1460 crosscut west from Rowe's shaft. This has been driven 24 feet 6 inches, making a total distance driven of 80 feet.—1360 feet level north, south of crosscut. This end has been driven 2 feet 6 inches, making a total distance driven of 110 feet 10 inches. The lode is 1 foot 6 inches wide, assaying 3 ounces. The rise in the back of this level has been put up 12 feet, making a total height of 128 feet. The lode is 2 feet wide, assaying 3 dwts. 22 grains.—1360 feet level north of winze. This end has been driven 27 feet 6 inches, making a total distance driven of 149 feet. The lode is 3 feet wide, assaying 9 dwts. 2 grains. The winze in the bottom of this level has been sunk 10 feet, making a total depth of 66 feet 6 inches. The lode is 3 feet wide, assaying 3 dwts. 22 grains.—1260 feet level north. The rise in the back of this level has been put up 17 feet 6 inches, making a total height of 59 feet. The lode is 5 feet wide, assaying 1 ounce 2 dwts. 4 grains. There are 4 stopes in the back of this level, the average width of the lode being 6 feet giving an average assay of 1 ounce 1 dwt. 16 grains.—1260 feet level south. There are 3 stopes in the back of this level, the average width of the lode being 2 feet giving an average assay of 2 ounces 2 dwts. 4 grains. Driving south on the fold in the back of this level has been driven 14 feet 6 inches, making a total distance of 23 feet. The lode is 1 foot 6 inches wide assaying 16 dwts. 23 grains.—1160 feet level north. There are four stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 1 ounce 5 dwts. 20 grains.—1080 feet level north. There are three stopes in the back of this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 1 ounce 5 dwts. 18 grains. We have two pares of men engaged stripping down side in the bottom of this level in which the lode is 2 feet 3 inches wide, giving an average assay of 9 dwts. 10 grains.—990 feet level north. We have a pare of men engaged stripping down side in the back of this level in which the lode is 1 foot wide, assaying 5 dwts. 5 grains.—890 feet level north. The lode in the stopes in the back of this level is 3 feet wide, assaying 5 dwts. 5 grains. We have a pare of men engaged stripping down side in the back of this level in which the lode is 1 foot wide, assaying 5 dwts. 5 grains.—780 feet level north. This end has been driven 14 feet 6 inches, making a total distance driven of 479 feet 6 inches. The lode in the stopes in the back of this level is 3 feet wide, assaying 5 dwts. 21 grains.—620 feet level north of crosscut. This end has been driven 3 feet 8 inches, making a total distance driven of 236 feet 6 inches. The lode is small and mixed, assaying 3 dwts. 22 grains. There are two stopes in the back of this level, the average width of the lode being 2 feet 6 inches, giving an average assay of 1 ounce 0 dwts. 10 grains.—620 feet level south of crosscut. The rise in the back of this level has been put up 11 feet, making a total height of 148 feet. The lode is 5 feet wide, assaying 7 dwts. 3 grains.—620 feet level south. The lode in the stopes in the back of this level is 1 foot 6 inches wide, assaying 4 dwts. 13 grains.—466 feet level north No. 1 crosscut. This has been driven 13 feet 6 inches, making a total distance driven of 112 feet 9 inches. During the past fortnight we have intersected two or three branches of quartz, assaying 1 dwt. 7 grains, and consequently we intend to drive the crosscut further, as it is possible we have not yet intersected the main branch.—236 feet level north. The drift north on the quartz met with in the eastern side has been driven 16 feet, making a total distance driven of 71 feet 6 inches. The lode has become pinched, but we hope only temporarily. There are two stopes in the back of this level, the average width of the lode being 1 foot, giving an average assay of 2 ounces 11 grains. The rise in the back of this level to meet the incline shaft has been put up 38 feet 6 inches, making a total height of 148 feet.—Incline shaft. This has been sunk and timbered 24 feet, making a total depth of 142 feet 6 inches.—Taylor's shaft, 466 feet level north. There are two stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 9 dwts. 2 grains.—Gilbert's shaft, 650 feet level north. This end has been driven 17 feet, making a total distance

driven of 336 feet 6 inches. There is nothing here yet to report.—620 feet level north. There are two stopes in the back of this level, the average width of the lode being 2 feet 3 inches, giving an average assay of 17 dwts. 14 grains.—520 feet level south. The lode in the stopes in the back of this level is 1 foot 6 inches wide, assaying 11 dwts. 17 grains.—360 feet level north. There are two stopes in the back of this level, the average width of the lode being 2 feet 2 inches, giving an average assay of 9 dwts. 11 grains.—290 feet level north. There are five stopes in the back of this level, the average width of the lode being 2 feet 2 inches, giving an average assay of 11 dwts. 20 grains.—290 feet level south. The lode in the stopes in the back of this level is 3 feet 6 inches wide, assaying 5 dwts. 21 grains.—180 feet level south. Taking away aches of ground in this level. Lode averages 3 feet 6 inches wide, giving an average assay of 1 ounce 5 grains.—Tennant's Shaft: This shaft has been sunk 5 feet 6 inches, making a total depth of 94 feet 6 inches below the 520 feet level. This machine has also been engaged cutting out a piece of ground in the south end of the shaft for pitwork.—520 feet level north. The rise in the back of this level has been put up 7 feet, making a total height of 67 feet. The lode is 1 foot 6 inches wide, assaying 13 dwts. 1 grain. There are two stopes in the back of this level, the average width of the lode being 4 feet 3 inches, giving an average assay of 1 ounce 8 dwts. 22 grains.—360 feet level north, south of cross cut. The winze in the bottom of this level has been sunk 8 feet, making a total depth of 36 feet. The lode is 2 feet wide, assaying 5 dwts. 5 grains.—290 feet level south, south of cross cut. This end has been driven 1 foot 6 inches, making a total distance driven of 71 feet 6 inches. There is nothing here to report.—Schaw's shaft. 450 feet level north, cross cut east. This has been driven 2 feet, making a total distance driven of 21 feet 6 inches. The No. 3 rise in the back of this level has been put up 1 foot 9 inches, making a total height of 141 feet. This place has now been suspended and the machine put to stopes in the back of the 450 feet level south of McTaggart's on the fold, about 100 feet south of the shaft, on a lode 1 foot 6 inches wide assaying 1 ounce 2 dwts. 12 grains. The winze in the bottom of this level has been sunk 3 feet, making a total depth of 77 feet 9 inches. The lode is 1 foot 6 inches wide assaying 1 ounce 19 dwts. 4 grains. The lode in the stopes in the back of this level is 1 foot 3 inches wide assaying 5 dwts. 5 grains.—450 feet level north, south of crosscut. The rise in the back of this level has been put up 7 feet 6 inches, making a total height of 29 feet. The lode is 1 foot 3 inches wide assaying 9 dwts. 2 grains. The lode in the stopes in the back of this level is 2 feet wide assaying 1 ounce 18 dwts. 6 grains.—320 feet level north. The winze in the bottom of this level has been sunk 2 feet 6 inches, making a total depth of 153 feet 3 inches. The lode is 1 foot 3 inches wide, mixed, assaying 6 dwts. 12 grains.—320 feet level north of crosscut. The rise in the back of this level has been put up 9 feet 6 inches, making a total height of 72 feet 6 inches. The lode is 1 foot 6 inches wide assaying 6 dwts. 12 grains.—320 feet level south of crosscut. This end has been driven 2 feet 9 inches, making a total distance driven of 165 feet 6 inches. The lode is 1 foot wide, mixed, no assay made. The lode in the stopes in the back of this level is 1 foot 6 inches wide assaying 9 dwts. 2 grains. 220 feet level north. This end has been driven 3 feet 6 inches, making a total distance driven of 255 feet 9 inches.—McTaggart's Shaft. On the 21st inst. we resumed the sinking of this shaft below the 450 feet level, which has been sunk 5 feet. The lode is 6 inches wide; no sample taken.—320 feet Level North. This end has been driven 15 feet 6 inches, making a total distance driven of 215 feet 6 inches. The lode is 1 foot wide, assaying 6 dwts. 12 grains.—Glen Shaft. 250 feet Level North. This end has been driven 11 feet 6 inches, making a total distance driven of 1337 feet 9 inches. There is nothing here to report. The crosscut east in this level has been driven 3 feet, making a total distance driven of 245 feet.—Ribblesdale's Shaft. This shaft has been sunk 13 feet 6 inches, making a total depth of 295 feet 6 inches.—1060 Crosscut West. We have had a machine engaged here cutting out side preparatory to the starting of the rise, which was commenced on Friday last, the 25th inst.—Williams' Shaft. The crosscut east from the shaft at the 173 feet level has been driven 5 feet 6 inches, making a total distance driven of 41 feet 6 inches.—East Prospect Shaft. Driving south on the old workings met with in the crosscut east has been driven 9 feet 6 inches. This has now been suspended, owing to bad ventilation, and we have resumed the sinking of the shaft, which has been sunk 2 feet 3 inches, making a total depth of 74 feet 9 inches. The health of the camp is good. We have had a little rain during the past fortnight.

**MOUNT LYELL.**—The London committee have received the following report from the Melbourne board for the week ending May 3: Engine shaft 100 feet level. The western cross cut has been driven 3 feet, total 72 feet. Still in hard pyrites.—50 feet level. The south drive has been advanced 7 feet, total 104 feet from shaft. This drive is now in schist rock. The stopes on the ore body north of the shaft are furnishing the regular quantity of rich ore.—No. 2 shaft 100 feet level. The western cross cut has been driven 5 feet, total 29 feet. Country hard, 12 feet of timbering have been put in the shaft, and the ladderway and centres put in to the 100 feet level.—No. 5 Tunnel. The contractors have driven 21 feet for the week, total 559 feet. The face is in tough ground.—Ore raised. 186 bags, weighing 10 tons 12 dwts. 19 lbs.; contents 10,674 ounces of silver, and 2 tons 9 dwts. 2 qrs. 2 lbs. of copper.—Ore despatched. 113 bags weighing 7 tons, and containing 7112 ounces of silver and 1 ton 19 dwts. 22 lbs. of copper, or an average of 1016 ounces of silver, and 28 per cent. of copper per ton have been despatched.

**NINE REEFS.**—Fortnightly report of Captain John Woolcock, mine agent, dated May 29: Vyvyan's shaft. The 460 feet level has been driven south of shaft 12 feet, making a total distance of 20 feet 2 inches. The lode matter is 4 feet wide, carrying a little pyrites, carbonate of lime, and small stringers of quartz which show no free gold, but the concentrated pyrites vary in assay value from 2 to 18 ounces of gold per ton. I calculate to drive another 4 feet, after which the machine will be put to sink the shaft below the 460 feet level, and take out the necessary ground for cistern plat, &c., so as to enable us to fix a lift at the 460 if required. The 460 feet level north has been driven 3 feet 9 inches, total from shaft 10 feet 6 inches. The end was then suspended, and the men put to crosscut west to prove if there is a more productive part standing (near) in that direction. The part on which the shaft has been sunk has been regular and continuous, and at times looked as if it would suddenly improve, but we have met with disappointments again and again. And although it is my opinion that we are on the main part, I consider it highly important that this crosscut should be driven, as no one can say what changes may take place in this disordered channel of ground. The crosscut has been driven 6 feet 11 inches. The ground at present is very hard and dry.—Bennett's Shaft. The crosscut west at the 145. The level driving north from this crosscut at 225 feet from the mouth has been further extended 15 feet 10 inches, total distance from crosscut 21 feet 4 inches. The lode continues about 20 inches wide, and presents a promising appearance, but it is unproductive. I propose driving this end a little further.—South Shaft. This shaft has been further deepened 6 feet 5 inches, making a total depth from surface of 127 feet 8 inches. We have met with nothing of importance since my report of the 16th inst., although we are now about 8 feet below where I expected to have intersected the lode. The shaft will be suspended in two or three days, and the men put to cross cut east and west. East to intersect the canter lode, which I calculate will be reached in 115 or 120 feet from shaft, and in this cross cut we shall be sure to intersect any part of Champion lode, if it should be standing in that direction. The cross cut west will be to intersect the lode we passed at 96 feet from surface, which I trust will be found more settled and valuable in the hard ground. The greater part of the water is coming from the west side, which would indicate that it is the main part, and if so, no doubt it will improve as depth is attained.—Prospecting. The No. 1 shaft has been sunk 9 feet 2 inches, total from surface 62 feet. The lode is 2 feet wide, composed of decomposed schist, quartz, and oxide of iron, and worth by assay 7 dwts. 4 grains of gold per ton. The No. 4 shaft has been deepened 5 feet 9 inches, making a total depth from surface of 87 feet 10 inches. The ground continues very hard, and



the lode at present is disordered and unproductive.—Surface. There is nothing in this department that calls for comment. The machinery and pitwork are in good order and working well, and the usual surface work is going on satisfactorily.

**PUNJOM.**—The following is the manager's report for March: August shaft. Bottom drive north. The ground during the month has been very hard and bad for blasting, but I think we have almost passed through this hard belt, as the ground is changing, and I expect it to be much easier for driving as we near the lodes, and that much better progress will be made. We have at present in the face of the drive small veins of quartz which carries gold, but not sufficient to save. I mention this as I consider it most encouraging to get gold in the rock so far away from the lodes. Driven during the month 18 feet 6 inches, total distance from shaft 22 feet 6 inches. Surface shaft No. 2 was commenced in the early part of the month to go down and communicate with the western stopes. These shafts are of great advantage for sending down timber, and for maullocking up these stopes after the quartz have been taken away, which in places are over 40 feet wide. The quartz is also drawn up through these shafts and delivered on surface at same rates as paid from these stopes delivered at bottom of shaft. Sunk in quartz the whole depth with the exception of 10 feet, and at a depth of 70 feet communicated with stopes.—No. 2 trial shaft. We had to suspend operations in the early part of the month owing to the bad ventilation. We could not keep lights burning. Our output from this point was about 20 tons not yet milled. No. 3 shaft was commenced 100 feet further south to cut the same run of quartz as in No. 2 shaft, and to connect with and ventilate same. We have struck leaders in sinking. Depth of shaft 60 feet 6 inches. West drive was driven 14 feet, and the prospects are the same as last reported. South drive has been extended 19 feet 6 inches, and a change of ground has been met with, and I think we are near the lode. We have a little quartz in the face carrying a little free gold, but not taking a definite course. I will extend the drive a little further, and if nothing is met with will drive on the course of the quartz.—Stopes east and intermediate section. Work on these stopes has been stopped, as it is necessary to leave blocks of quartz to support the shaft, the shaft having been sunk through the lode. These stopes represent our best ground, and will be left as reserves for the present. West and new stopes are producing large quantities of average stone. Estimated quantity of quartz raised during the month 1045 tons. Milling was carried on for 25 days, crushing 1150 tons for 476 ounces 15 dwts. of gold.—General. Everything coming under this head is having our attention.

**SOUTH-EAST MYSOORE.**—Fortnightly report of Captain M. Scantlebury, mine agent, dated May 29: Beresford's Shaft. The 200 feet level north has been advanced 15 feet, now 21 feet from shaft. The lode is 4 feet wide composed of quartz and iron pyrites. Three samples have been taken with the following result:—No. 1 6 dwts. 12 grains of gold per ton; No. 2, 8 dwts. of gold per ton; No. 3, 16 dwts. 23 grains of gold per ton. 200 feet level south has been extended 14 feet, now 19 feet from shaft. The lode is 3 feet wide, 1 foot 6 inches is solid quartz again at the hanging. Four samples have been taken. Hanging wall quartz No. 1, 1 ounce 12 dwts.; hanging wall quartz No. 2, 1 ounce 12 dwts. 16 grains; footwall quartz No. 1, 3 dwts. 6 grains; footwall quartz No. 2, 5 dwts. We started with 4 men to drive south of the shaft at the 100 feet level. A week since 3 feet has been driven. The quartz is 1 foot 9 inches wide assaying 1 ounce 1 dwt. 13 grains of gold per ton. As soon as we are in a few feet from the shaft I shall put on more men here. This ground must be opened out for stoping.—Pigott's Shaft. The crosscut east at the 180 feet level has been extended 5 feet, now 11 feet from shaft. The rock is very hard. We expect to reach the lode in 7 feet more driving.

**FRONTINO AND BOLIVIA.**—Report of the mine agents on the mines: La Salada, May 8: Silencio. The underground workings at this mine are being continued as usual. The new whim for hauling at the south shaft is in place, and we shall commence laying skip road in this shaft at once. Excavations are proceeding for the new wheel at the Californian mill, at Maria Dama. The work at the Salto for the new "Arrastres" is proceeding satisfactorily.—La Salada. The sinking of the new shaft has been delayed, as the men are employed in squaring and timbering the part below the No. 6 crosscut, and dropping the drawing lift preparatory to resuming the sinking. The lode in the No. 6 end south has slightly improved, both in size and quality. The stopes are producing about the same as usual. Excavations for the site of the new mill are being pushed forward.—Córdoba. The No. 8 crosscut has again changed, and the ground become hard, though driving up to date has been equal to last month. We are preparing air pipes for the better ventilation of this level, and to facilitate driving. This work will be done by a Root's blower, which has been placed in the smith's shop, at the mouth of this level, and worked by a water-wheel. The lode in the No. 7 end south (Rosario section) is about 3 feet wide, and is producing mineral as last reported. Ventilation has been made good here, by the holing of the winze from the Rosario level to this, and the ground has been laid open for immediate stoping. The stopes in the mine throughout are about the same as last reported, as is also the work of the mine generally.—Tigrillo. The No. 6 crosscut, La Humedad, has cut into soft ground, and is now letting out streams of water. We expect to cut the lode here very shortly.—Marmajon and Marmajito. The driving of the crosscut at Marmajon is about the same as last month. Also the No. 2 crosscut at Marmajito. We are repairing and clearing the old level east of the ventilation rise. During the month we have resumed stoping in the bottom of the No. 1 level, and the mill will be started immediately.—Pocuné Watercourse. Both the repairing of the San Antonio aqueduct, and the work in general are proceeding satisfactorily.—General. The produce of the mines up to date is in advance of last month. The work throughout the whole of the mines is proceeding steadily. The health of all employed is good.

**MOUNT MORGAN (Queensland).**—Further assays from Grass-tree workings. Stope No. 1. April 6th to 27th, 11 assays, nil to 9 ounces 7 dwts. 20 grains, average 2 ounces 5 dwts. 11 grains.—Stope No. 2. April 3rd to 27th, 19 assays, 4 dwts. 21 grains to 5 ounces 7 dwts. 19 grains, average 1 ounce 15 dwts.—Stope No. 3. April 3rd to 28th, 18 assays, trace to 49 ounces, average 4 ounces 14 dwts.—Stope No. 4. April 5th to 30th, 16 assays, trace to 16 ounces 6 dwts. 16 grains, average 2 ounces 4 dwts.—Grass-tree shaft. April 3rd to 28th, 20 assays, nil to 13 ounces 4 dwts 14 grains, average 1 ounce 9 dwts.—Linda cross cut. Assays 30th April, 3 ounces 16 dwts. 8 grains. 1st May, 8 dwts. 4 grains; 3rd May, 20 grains; 4th May, 4 dwts. 21 grains. The manager reports (5th May):—For the last three days we have been going through a dyke, which is the cause of this poor return.

**QUEEN'S BIRTHDAY UNITED.**—The following mail advice has been received from Mr. W. T. Hansford, the company's local secretary, at Donolly, dated 14th May:—Report for past fortnight is as follows: Main Shaft, No. 7 Level. Drained and cleaned up ready for operations, and as soon as the 1200 feet of 5½ inch air pipes are received, they will be placed in position, and the work of continuing the cross cut east to the main wall pushed ahead. At No. 5 level the east cross cut to main wall has been extended 11½ feet, total from the level 18½ feet; expect to strike the wall in a few feet more driving. The country has now a better appearance for the reef being in close proximity. At the trial shaft in the sand heap the cross cut has been driven 17 feet, total from shaft 50 feet. The last few feet has been through ironstone and quartz leaders, which are now making stronger in the face.—Centre Shaft. No. 4 level is cleaned up along the level north and south of the cross cut, and up to where the reef was worked many years ago, and stated by some that worked in it to be payable; the stone is from 6 to 10 feet wide, and carries a quantity of minerals; in all probability we shall put a small lot through the battery to test its value.—Centre Shaft. No. 3 level is also cleaned up to No. 1 winze south of shaft; we intend doing a little prospecting at this point, and to break out some of the stone from the winze, where the reef is from 4 to 5 feet wide, and looks promising for gold.—Belgium. The drive south at the 200 feet level has been extended 30 feet, total 38 feet from the cross cut. The reef in the face is 2 feet wide, with coarse gold seen occasionally in the stone. Some very nice

specimens were brought to the office on Saturday last, and if the quality continues as at present I shall feel justified in sending a further cable. The gold seems to be very coarse, but as yet a little patchy, but I hope as the drive is advanced that we shall get on something good.—Sinking Winze: We intend as soon as we can spare the men to resume sinking the winze from the upper workings, the water from which has quite drained. The local directors are leaving no stone unturned to bring about the success so much desired, and are anxiously watching each development.

**MOUNT ZEEHAN (Tas.).**—The manager writes for week ended May 8:—Argent section. Main engine shaft, No. 6 lode, 30 feet level, south stope. Ore raised, 48 tons 15 cwt. good seconds, and 5 tons 4 cwt. firsts. Lode 1 foot wide, carrying in places 6 inches of firsts.—72 feet level south. Extended 12 feet 6 inches; total, 126 feet. Ore raised, 35 tons 15 cwt. very good seconds. Lode formation, 6 feet wide, carrying 1 foot good milling ore.—132 feet level south. Extended 10 feet 6 inches; total, 73 feet 6 inches. Lode 1 foot wide, carrying very good seconds.—132 feet level, north stope. Ore raised, 16 tons 5 cwt. Have also holed through to 72 feet level.—Crosscut west to No. 7 lode. Extended 9 feet; total, 29 feet 6 inches. Ground good for progress.—No. 3 lode, No. 2 shaft. Have finished putting down larger pump, and resumed sinking. Concentrator has been run 42 hours, and milled 140 tons 10 cwt. seconds for 34 tons 15 cwt., concentrates (including prills) containing about 26 tons of lead and 2910 ounces of silver.

**ALMADA AND TIRITO.**—Report for month ending 26th May: Dios Padre. The 350 feet level driving north has been extended 12 feet north of the winze. The lode contains veins of quartz and silicate of copper, but not in paying quantities. The 250 feet level driving north is at present without ore, but the lode is large and well defined; 24½ feet were driven by four men. The 250 feet level driving south has undergone no change; the lode continues to yield some good stones of copper glance, but owing to the hard nature of the quartz our progress is slow; 10 feet were driven by two men.—Stopes. The stope back of the 156 north of Cruz Verde has fallen off in value, but the stopes north of Balvanera shaft in the 12 and 24 fathom level continue to yield good quantities of milling ore.

**NAMAQUA COPPER.**—Abstract of superintendent's report for April.—Tweefontein Mine. Shaft below the 115 fathom level. The ground here is now unproductive, consisting chiefly of quartz.—115 fathom level east. The value in this part of the lode, which is being carried 9 feet by 9 feet, has slightly fallen off, but on each side of the driving good stoping ground is still standing. Worth 5 tons of ore per fathom.—105 fathom level east. This has improved slightly, and is opening up a valuable section of ground. Worth 7 tons of ore per fathom.—105 fathom level east, No. 25 winze. This is now to the depth of the back of the 115 fathom level east, and a driving is being started on the western end to communicate with that level. Worth 4 tons of ore per fathom.—95 fathom level west. At this point there is also a slight improvement, owing to an increase in the width of the lode, which has less dip than formerly, and looks promising for further improvement. Worth 4 tons of ore per fathom.—95 fathom level east, No. 26 winze. The ground here has improved in value, and presents a very promising appearance. Worth 5 tons of ore per fathom.—85 fathom level west. There is very little change at this point, the lode being still massive, and highly mineralised throughout, but not of much value. Worth 2 tons of ore per fathom.—Stopes. 105 fathom level west. The stope in the side of this level is still yielding well. Worth 10 tons of ore per fathom.—95 fathom level west, bottom of level. This stope also continues to yield well. Worth 10 tons of ore per fathom.—New shaft. 25 fathom level east. The ground being driven through is still very much broken. It yields occasional small patches of rich ore, but not enough to value.—25 fathom level west. This is without change since the last report. Worth 10 tons of ore per fathom.—Phillips' shaft. There is still no change at this point. The ground produces occasional spots of ore, but is of no value.—Shipping. The *Glenrafin* arrived at Swansea from Port Nolloth on the 30th of May, with about 730 tons of ore. The *Goldend* left Port Nolloth for Swansea on the 16th June, with about 690 tons of ore.—Output for May. 400 tons of ore of 30 per cent.

**OURO PRETO.**—Passagem Mine. Incline shaft No. 1 was sunk 690 metres. Quartz has come down from the roof, and is now standing all over breast of incline, but is, so far, of low yield. Incline shaft No. 2 was sunk 620 metres, and continues without change; full size in low grade quartz. 435 end north east was driven 550 metres. The ore is still under foot of level, and the heading is in schist. Crosscut from 435 north east was driven 250 metres, still in very hard bitulite. The end being sufficiently advanced, driving is suspended and a winze will be put down on to roof of incline for a tipshoot. 435 end south west was driven 310 metres in mixed schist and quartzite. 400 end north east was driven 680 metres. A branch of quartz nearly 1 metre thick, and carrying good patches of pyritic ore, is holding against the hanging wall, but the lower part of level is in schist. End from stope at 400 north east was driven 500 metres. The branch which was being followed has dipped under floor of level, and the end, being in quartzite, has been suspended. 365 end north east was driven 620 metres. It continues full size in quartz lode of good yield, and is opening up a valuable and extensive piece of stoping ground. End from No. 2 crosscut at 365 north east was driven 320 metres. A bar of quartzite is crossing in the middle of the end, but the remainder is in good quartz lode. End from No. 1 crosscut was driven 400 metres along footwall of lode. The end carries a branch of tourmaline ore in hard schist, but quartz is standing along the roof. Rise from stope over 365 north east was advanced 170 metres, and holed to stope above, thus facilitating the breaking of ore under the 315 level. 365 end south west was driven 640 metres, and is now full size in lode composed of tourmaline ore with pyrites. Rise from 365 crosscut was put up 170 metres, and holed to No. 1 shaft, making a good shoot for disposing of attle. Cross cut at 315 north east was driven 660 metres; for 3 metres the head went through massive quartz, but this has dipped suddenly, and the breast is now wholly in quartzite, 315 end south west was driven 560 metres in mixed lode of quartz, quartzite, and schist. Rise over 315 south west was advanced 680 metres, chiefly in schist, with small lines of ore against the roof. Rise over 265 between shafts was advanced 510 metres chiefly through schist, but is now in a branch of quartz carrying good patches of pyritic ore. Rise from 265 south west was advanced 620 metres in stratified quartzite partially decomposed. Crosscut at 265 south west was driven 460 metres in schist carrying lines of quartz. 215 end north east was driven 840 metres in schist. 175 end south west was driven 360 metres. The schist now carries interstratified lines of quartz and quartzite along the floor of level.—Stoping. At the 400 level the largest amount of stoping was done in the south west section where the inner stope and that from rise 28 have been communicated. Some 300 cubic metres of lode were broken at this point, the lode averaging 350 metres thick, most of which is milling ore. On the north east side work in No. 4 stope was impeded by falls of the roof, but a stone arching has been built for passage way and roof secured by filling. Between the 315 and 365 levels north east about 350 cubic metres of ground were broken, and with the communication of the rise between the stopes a continuous face of ore about 50 metres long on the incline is laid open for stoping. The lode averages about 3 metres thick, and though carrying only small lines of pyrites is turning out very well in the mill. Over the 265 south west the stope carries a length of nearly 30 metres, the lode being over 5 metres thick, but it is split into two branches by a thick bar of schist along the middle. Two stopes lately opened from old stopes at 315 south west are improving, the lode increasing in size as the stopes advance. Over the 365 level near No. 1 shaft a strong body of quartz carrying good patches of pyrites is holding up, though at present bars of quartzite are being met with. Other stopes of minor importance were worked under the 215 level in the north east section and from rise 22 on south west side, but at the 435 level no stoping was done, the men being put to bid and prepare for stoping on a larger scale as soon as required for the new mill.

A DIAMOND of 163 carats weight was found at Jagersfontein on May 15.

## PROVINCIAL SHARE MARKETS.

### THE CORNISH MINE SHARE MARKET.

**M. R. SAMUEL JOHN DAVEY**, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of June 21 (4 o'clock) as follows:—Our market has been dull and featureless this week, and there is nothing doing to-day. Following are quotations:—Blue Hills, ½ to ¾; Carn Brea, 7 to 7½; Cook's Kitchen, ½ to 1; Dolcoath, 71 to 72; East Pool, 9½ to 9¾; Killifreth, £3 6s. to £3 8s.; Polberro, 1½ to 1½; South Condorow, ½ to ¾; South Crofty, 1½ to 1½; South Wheal Frances, ½ to ¾; Tincroft, 10½ to 11; West Frances, 2 to 2½; West Kitty, 5½ to 6½; Wheal Agar, 1 to 1½; Wheal Bassett, 2 to 2½; Wheal Grenville, 17 to 17½; Wheal Kitty (St. Agnes), ½ to ¾.

**Mr. MICHAEL WILLIAMS BAWDEN**, Mining and Assaying Offices, Liskeard, Cornwall, writes (June 21) as follows:—The mining market is without any improvement, and devoid of all enquiry for shares on the further reduction in the price of tin. Business exceedingly limited and quotations lower. Closing prices:—Blue Hills, 10s. to 11s. 6d.; Carn Brea, 7½ to 7½; Cook's Kitchen, ½ to ¾; Dolcoath, 71 to 71½; East Pool, 9½ to 9½; Killifreth, 3½ to 3½; Phoenix United, ½ to ¾; Polberro, 1 to 1½; South Crofty, 1½ to 1½; South Frances, 15s. to 17s. 6d.; Tincroft, 11 to 11½; West Frances, 2½ to 2½; West Kitty, 5½ to 6½; Wheal Agar, 1½ to 1½; Wheal Bassett, 2½ to 2½; Wheal Grenville, 16½ to 17; Wheal Kitty, 10s. to 11s. 6d.

**Messrs. ABBOTT AND WICKETT**, Stock and Share Brokers, and Mining Share Dealers, Redruth, write under date of Thursday, June 21:—There has been but little alteration in the market this week, and in the absence of business prices on the whole are slightly lower. Still, it would be difficult to buy any number of shares at quoted prices. Quotations herewith (four o'clock):—Blue Hills, ½ to ¾; Carn Brea, 7 to 7½; Cook's Kitchen, ½ to 1; Dolcoath, 71 to 72; East Pool, 9 to 9½; Killifreth, 3½ to 3½; Phoenix, 1s. to 3s.; Polberro, 1½ to 1½; South Condorow, ½ to ¾; South Crofty, 1½ to 1½; South Frances, ½ to ¾; Tincroft, 11 to 11½; West Frances, 2 to 2½; West Kitty, 5½ to 6½; Wheal Agar, 1 to 1½; Wheal Bassett, 2 to 2½; Wheal Grenville, 17 to 17½; Wheal Kitty, ½ to ¾. Tin, 70½.

### MANCHESTER.

**Messrs. JOSEPH R. and W. P. BAINES**, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write, June 21, 1894 (noon):—Only a meagre business doing again during the past week, and changes all round, save for the top rank investment securities, and some Home Rails very irregular. The march of appreciation in values in the so-called "gilt-edged" securities continues, with little or no break, although Liverpool Three and a Half per cent. and Birmingham Three and a Half per cent. do quote somewhat down from the best. These declines, however, are more than counterbalanced by the further advances marked, which are as follows:—Manchester Three and a Half per cent., 1 to 2; Oldham Four per cent., 1; and Bury and Glasgow Three and a Half per cent., ½ each. Consols quote ½ to ¾ higher on the week. Advances of 1 and ½ respectively are the only variations in current prices for Colonial Government Bonds, &c. It is some time since we had so few and slight changes to note in the market for foreign Government bonds, &c. Compared with figures of a week ago there is no instance of change exceeding ½, and the balance numerically is distinctly in favour of holders. In railways the several sections, though not with some few contradictions amongst themselves, show fairly decided movement, viewing the departments individually. Home rails, with the exception of South Eastern A, which are ½, Brighton A ½, and Great Eastern ½, and one or two others in very small fractions lower, show a goodly number of advances, foremost amongst which are the "Macs," these being put better under the impression that the strike which is to commence on Monday next will not be of long duration. London and North-Western and Midland are pretty well advanced, and there are a few more of small amount. In Canadians there is very little movement on balance, though there have been a few small fluctuations. Compared with last Thursday, Pacifics are ½, Trunk Second ½ to ¾, and Trunk Third ½ to ¾ lower, and nothing on the higher side to record. Mexican Rails contradictory, Ordinary being ½, and First Preference ½ higher, whilst Second Preference is put 2 down. The features of the market are found in American, as is very often the case. A fresh wave of depression has burst over this department, the most effect of which is exhibited on Pacific lines. Union Pacific are to the front with decline of ½, and have for a following Central Pacific ½, Erie ½, Denver Preference ½, New York Central ½, Atchafon Income Bonds ½, ditto Ordinary ½, Readings ½, Ohio First ½, Denver Ordinary ½, Louisville ½ to ¾, and a few others smaller in extent. From the miscellaneous markets the business of the week has been very meagre, very little indeed being in progress, excepting in Ship Canal issues. Some classes show fairly distinct changes, but on the whole changes are irregular with not much balance on either side.

**BANKS.**—Hardly any lots changing hands, but prices are very well maintained. Manchester and Salfords are the turn easier, but otherwise all the alterations are for the better. National Provincial ½, Lancashire and Yorkshire ½, Liverpool and Midland, ½, and Union of Manchester ½ to ¾.

**INSURANCE** all but ignored as regards business. Quotations have had some attention.—Higher: Commercial Union ½, British and Foreign Marine ½ to ¾, Lancashire and Yorkshire Accident 1-16, and Manchester Fire 1-16.—Lower: Liverpool, and London, and Globe ½, London and Lancashire ½, and Globe Accident 1-16.

**COAL, IRON, &c.**—Ebbw Vales have been done a few times, and are somewhat lower. These transactions, and a trifling business in Bolckows, comprise all that is doing here. A few changes are marked, viz.: Higher: Bolckows, fully-paid, ½; Richard Evans, A, ½; Milner's Safe, ½; Nantyglo Preference, ½. Lower: Bolckows, £12 paid, ½; John Brown, ½; Dorman Long, ½; Ebbw Vales, 1-16 to ¼; and Whitworths, ½.

**MINES** neglected, excepting for some markings in Tintos. Prices all lower, where altered at all.

**TELEGRAPHS.**—Anglo issues are decidedly lower, and Directs the torn down, without any advances; but in Telephones National Ordinary and Third Preference are slightly higher.

**COTTON SPINNING** shares still very dull, and prices without any changes worth noting.

**BREWERS.**—Ailsopp again a sensation. With several wide fluctuations still retain a rise of 11 on Ordinary and 1½ on Preference. Guinness are 4, and Threlfalls ½ higher also. No declines to notice.

**MISCELLANEOUS.**—Hardly anything doing except in Ship Canal issues. These have oscillated a little, and later prices have mended, latest prices being about the best, particularly on the preference. On comparison, ordinary are about the same as a week ago, but preference are ½ higher.

**LATER (4.0 p.m.).**—Home Rails more enquired for again, Southern Stocks especially. In Americans, some of those particularly depressed yesterday have made some recovery to-day, but Denver descriptions have been very much pressed for sale to-day, and quote distinctly lower. Mexicans and Canadians are but little if at all altered.

### SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

**STIRLING.**—**Mr. J. GRANT MACLEAN**, Stockbroker and Ironbroker (June 21), writes:—During the past week there has been no improvement in the amount of business done. Prices are generally lower on dull trade reports, drooping metal markets, and the prospect of a miners' strike. The easy state of the money market should, however, encourage investors.

In shares of coal, iron, and steel companies the principal alteration is a drop on Ebbw Slate to ½, and the dividend announced at



2½ per cent. Bolckow Vaughan are at 10½, Fifeshire Main Collieries Preference 45s., Marbella 52s., Millom and Askham Hematite Preference 7, Niddrie 37s., Steel Company of Scotland 47s., Stewart and Clydesdale 8½, and Wilson's and Clyde, 9½.

In shares of copper concerns prices have been flat, in sympathy with the market for the metal, but a recovery has set in from the lowest points reached. Tharsis fell to 86s., and Tinto to 12 9-16. Arizona are at 6s. 6d., Cape 27s. 6d., Copiapo 35s.

In shares of gold and silver mines a fair amount of business has been done, but prices are generally easier. Montana have steadily improved from 8s. 6d. to 11s. The Frontino return for April shows £2229 profit. Oregum declined to 77s. 9d. on rumours of an issue of new capital, which have since been denied, but it seems to be thought that some explanation is wanted of the drop on the shares. A meeting of the Emma Company will be held on June 23 to consider a proposition for the future working of the Grizzly Mine. African Gold Recovery are at 36s. 6d.; American Belle, 3s. 3d.; British South Africa Chartered, 30s. 6d.; Broken Hill Proprietary, 53s.; Consolidated Gold Fields of South Africa, 45s. 6d.; Cassel, 20s.; Don Pedro, 3s. 3d.; Day Dawn, P.O., 3s. 6d.; Golden Gate C.T., 1s. 3d.; Gold Fields of Mysore, 23s. 6d.; Kempinkote, 2s. 9d.; Kapanga, 3s. 9d.; Lisbon Berlyn, 2s. 9d.; May Consolidated, 9s. 6d.; New Louis d'Or, 5s. 9d.; Orita, 2s. 9d.; St. John del Rey, 21s. 6d.; Sheba, 30s. 6d.; Sutherland Reef, 4s. 9d.; South African Trust and Finance, 1s. 6d.; Silver King, 2s. 6d. to 5s.; and Thistle Reef, 4s. to 4s. 6d.

In shares of miscellaneous companies prices are steady. In oil companies shares Broxburn are at 8 7-16, Linalthgow 16s., and Young's 20s. Nobel's Explosives have improved to 13½, and White Lead, 3s. to 4s.

#### EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of June 21:—The market has been quiet, with the exceptions of Caledonian Deferred and North British Railway stocks, which have been very sensitive in view of the impending strike in the coal trade, and have fluctuated. The former closes at an advance of 1½ on last week's price, and the latter at an advance of ½. The upward movement in debenture, guaranteed, and other high class securities has continued, and advances of 1 to 2 per cent. on those already recorded have not been uncommon. In banks, Bank of Scotland have risen 20s., Union 1s. 3d. Royal has fallen 70s., British Linen 50s. In insurance shares, Caledonian have improved 10s., Commercial Union 12s. 6d., Edinburgh Life 10s. North British and Mercantile have declined 15s., Northern 15s., Scottish Union and National, A, 9s. Scottish American Investment shares have risen 6s. 6d., Scottish and New Zealand have risen 3d., Marbella Iron have fallen from 55s. to 52s., Steel Company from 47s. 3d. to 46s. 6d. Nothing doing in oils. Young's 6d. higher at 19s. 6d. Assets shares 1s. higher at 46s. Barry, Oatlers, 3s. 9d. higher at 8½, Coat's 3s. 9d. higher at 17 13-16.

## JOINT-STOCK COMPANIES.

### NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

**St. Kent Prospecting Syndicate (Limited).**—Registered 5th June by G. and W. Webb, 11, Austin Friars, E.C. Capital £20,000, in £1 shares. Objects: To prospect for gold and other minerals in Western Australia or elsewhere, and to carry on the business of company promoters, financiers, &c.

**Newton, Carnegie, and Co. (Limited).**—Registered 11th June. Capital £50,000 in £10 shares. Objects: To acquire the business of commission agents, shipping agents, planters, and general merchants, and storekeepers, &c., hitherto carried on in St. Paul de Loanda, in the Province of Angola, on the South-West Coast of Africa, and in Lisbon, and elsewhere, under the style of "Newton, Carnegie, and Co.," generally to carry on business as shipowners, shipbuilders, cultivators of estates for agricultural purposes, coffee, sugar, and other produce growers and dealers, wine and spirit merchants, farmers, and graziers, colliery owners, builders and contractors; to establish and maintain rail and tramways, docks, canals, gas and electric works; as company promoters, &c., &c. The first directors—of whom there shall not be less than three nor more than six—are E. S. Gomez, J. M. Grant (both of 63, Cornhill, E.C.) and A. T. Rickards (of 40, Old Broad Street, E.C.), the latter representing the interests of the debenture holders. Qualification, £500. Remuneration, £2 2s. each for each board attendance. The "special" (or debenture holders) director, £50 per annum. E. S. Gomez and J. M. Grant are the managing directors (for 10 years), their qualification as such being £3000, and their remuneration £750 each.

**Devon Gawton Company (Limited).**—Registered 12th June. Capital £25,000, in £1 shares. Objects: To enter into an agreement with T. W. Field and A. Lanyon, for the acquisition of mines, mining rights, &c., in the United Kingdom or elsewhere, and to develop and turn to account the same.

**Whitworth Colliery Company (Limited).**—Registered 13th June by Barraud, Regge, and Japp, 7, St. Mildred's-court, E.C., with a capital of £12,000 in £1 shares. Objects: To enter into an agreement with the South Wales Mineral Estates (Limited), and to carry on business as colliery proprietors, ironfounders, engineers, builders, and brick and tile makers; to acquire patents and inventions, and turn to account the same, &c. The first directors—to be not less nor more than nine—are to be appointed by the signatories to the memorandum. Qualification, £50. Remuneration to be fixed by the company in general meeting.

**British Cyanides Company (Limited).**—Registered 13th June. Capital £60,000, divided into 160 founders' and 850 ordinary shares of £50 each. Objects: To carry on the business of manufacturers of and dealers in cyanides and other cyanogen products, and the business of chemical manufacturers in all or any of its branches. There shall not be less than three nor more than seven directors. The first are Henry Chance, Alexander M. Chance, James F. Chance, Alexander M. Chance, jun., George S. Albright, John W. Wilson, and Alfred G. Salamon. Qualification five shares, or nominated by the Oldbury Alkali Company (Limited), or Albright and Wilson (Limited). Remuneration not specified.

**Aloysius Syndicate (Limited).**—Registered 11th June by H. Stanley Jones, 29, Austin Friars, E.C., with a capital of £26,000 in £1 shares. Object, to acquire, develop, and turn to account certain mines and mining properties, particulars of which are not given. Table A mainly applies.

**Matthews' White Lead (Limited).**—Registered 14th June. Capital £25,000, in £1 shares. Objects: To carry on the business of smelters, manufacturers of and dealers in lead, desilverisers, chemists, drysalts, oil and colourmen, &c.

**Lagunas Nitrate Company (Limited).**—Registered 15th June. Capital £900,000, in £5 shares. Objects: To purchase or otherwise acquire the oficina recently erected at Lagunas, by the Lagunas Syndicate (Limited), and land and nitrate grounds adjoining the same, situate in the Canton del Sur, in the Province of Tarapaca, in the Republic of Chili, and the buildings, plant, machinery, stock, and other effects in and about the same; to undertake all the engagements and liabilities of the Lagunas Syndicate, and to carry on the business of manufacturers, exporters and dealers in nitrates, iodine and other products, carriers by land and water, shipowners, warehousemen, wharfingers, barge owners, lightermen, forwarding agents, &c. There shall not be less than three nor more than eight directors. The first are Colonel John T. North, Robert Harvey, Richard R. Lookett, E. Edmondson, Geo. Fleming, T. Douglas Murray, and Maurice Jewell. Qualification, £1000. Remuneration £1500 per annum, divisible.

## MINING IN VICTORIA.

### INTERVIEW WITH MR. THOMAS CORNISH.

THE name of Mr. Thomas Cornish is one that readily occurs to mind in connection with mining in Victoria. His is, perhaps, the most prominent individuality associated with the development of the industry in and around Ballarat, and there is every reason to believe that in the future he will be remembered as the prime mover in probably the largest scheme of amalgamation ever consummated within the colony. After an absence of seven months in Victoria, devoted to the furtherance of what has become his pet project, Mr. Thomas Cornish arrived back in England a week or two ago, just in time to experience the rigours of a British summer. Amid the hurry of professional and friendly calls, the old miner managed to cull out half an hour for our especial benefit, and the opportunity was a favourable one for the development of his views on Victorian mining schemes in general, and his own in particular.

"You know," he said, proceeding in the pithy and succinct style of a man of affairs, "at the last annual meeting of the Port Phillip Company, I was asked to go out to Victoria for the purpose of endeavouring to effect a combination under the Port Phillip Company of all the mines at Clunes."

"First, Mr. Cornish, as to the motive and scope of the amalgamation?"

"Well; there are, beside the Port Phillip, two leading mining companies in Clunes—the South Clunes Company and the Dixon New North Clunes. Having the deepest shaft upon the lines of lodes at Clunes, the Port Phillip have been cheerfully draining the whole area of the country, simply for the benefit of their neighbours. This was rather rough on them, so to obviate it the proposal was made to absorb the two other concerns into our own company, and so that we might effect an increase of our capital without any reconstruction."

"Was the proposal favourably received at the start?"

"Exceedingly so. Naturally there were many obstacles in the way. These, however, I ultimately overcame."

"Your own official connection with the Port Phillip Company is comparatively a recent one?"

"Quite recent. Over two years have elapsed since I was elected to the board, and I became Chairman upon the death of Mr. Charles Dixon, which occurred in London last year. The idea of the amalgamation has enlisted my warmest sympathy and interest, for I have known the place since I was a boy, and am consequently able, perhaps more than others, to see what such a scheme will do for the local community, as well as for the companies concerned."

"And did your proposal meet with general favour at Clunes?"

"Yes. Matters there were unfortunately in rather a complicated condition. Much of the property was vested in trustees, and it took a long time to get the interested parties to consent to the general scheme of amalgamation. At last, however, the two other parties fell in with my views, and the result is that I shall be able to submit to you a definite and well-thought out scheme for the approval of the meeting of the Port Phillip Company, to be held on the 27th of this month."

"What is the basis of the arrangement?"

Mr. Cornish drew a budget of papers from a capacious inside pocket, and recited:—  
"Briefly, the capital of the Port Phillip Company is to be increased from £50,000, in 200,000 shares of 5s., fully paid, to £175,000 in 700,000 shares of 5s. each, of which 500,000 will be issued as fully paid, for the acquisition by purchase and amalgamation of the South Clunes United Company, on the south boundary, and Dixon's New North Clunes Company, on the north boundary. The remaining 200,000 will be issued as 10 per cent. preference—not cumulative—shares."

"You anticipate no difficulty in bringing the shareholders into accord with you?"

"None at all. The scheme has been elaborated and matured in the most careful manner. Already the directors and the consultative committee have met and given their hearty approval."

"That looks well; you want the increased capital for additional developments at the mine?"

"That is so. Certain developments are at once required—the deepening of the shaft, for instance. Everything is going on satisfactorily, and I have every confidence in the future."

"About Victorian mining generally—what were the impressions of your visit?"

"The outlook there is extremely favourable. What is wanted is more capital and labour. Large pieces of land on all the gold fields are lying absolutely idle, simply for lack of enterprise. To my mind the output of gold could easily be doubled—perhaps even trebled. Victoria is especially in need of further development. With it the present output of gold could be increased from the current average of 2½ millions, to at least 5 millions. Gold mining wants to be gone into as a business. I know of no form of investment or industry that offers the same prospects of paying a fair, if not a very handsome interest upon the capital sunk, than gold mining as carried on by well-organised companies."

"How about the failures?"

"They are few, and those are mostly due to the injudicious manner in which the capital is expended. Frequently the mines are abandoned without being proved either one way or the other."

"That sort of thing must be simply fatal to mining as an industry?"

"But what else can the public expect when they leave the management of their affairs in hands that are entirely inexperienced? No tradesman could expect to succeed if his business were directed by a syndicate, not one of whom understood anything about the affairs he was supposed to manage. Inefficient management has a great deal—almost everything—to answer for."

"Clunes has had a large measure of success; has it not?"

"Even with a divided management—yes. But consolidated under an effective organisation, there is a prospect of much better things. Of that I am confident."

"You are unaffected by the water difficulty?"

"It affects everything in Australia; we have no more water in the mines than is wanted for the ore when in full work and raising such quantities of quartz as we hope to do, but for general purposes the town of Clunes is admirably supplied."

"At present the mines are at a standstill?"

"Almost so. The management are just keeping their hands in; that's all, pending the amalgamation."

"You did not confine yourself to Clunes during your visit to Australia, I presume?"

"No; there were frequent intervals in the negotiations, and I took occasion to go about a good deal."

"And you were favourably impressed?"

"Decidedly so. Beyond the needs I have already mentioned, there is nothing wanting to make the future of Victoria mining one of altogether unusual success. Confidence, I am glad to say, is reawakening in London for colonial mining, and it certainly is not misplaced. If the public would only exercise the ordinary caution which serves them in other directions of business

enterprise, there would be no fear. Mining men, too, ought to have an acuter knowledge of their own interests, to say nothing of a larger honesty, than to put a rank dufer on the market. In the long run they pay for it, and dearly, too."

Having thus ethically delivered himself in a manner to command general assent, Mr. Cornish recollected, with a start, that there were something over a dozen people waiting to see him, and accordingly he gathered his papers together and rose.

## IN THE COOLGARDIE GOLD FIELDS.

### ROUGH EXPERIENCES OF A PROSPECTOR.

A LETTER from Mr. Frank Moss, who went out prospecting to the Coolgardie gold fields, to his brother, contains the following:—On January 13, after having been just three days at Coolgardie after our last trip, we started for the now well-known Kurnalpie Find, 95 miles north-east of Coolgardie, with the intention of following Ready, the original discoverer. At the first water, 8 miles east, he stopped, as a black informed him all the waters had dried up. We stayed till Friday, and then went on to the 25 miles water, called Hampton Plains Garden, because some fruit trees were once put in there. At this place there were four parties all bent for the new field, also Fitzgerald, who had brought in 36 ounces. At this water we filled our kegs—40 gallons. We started off, and two days after Lindsay's party—Carr Boyd, Jim Grant, and Joe Tregarr, with four camels—picked us up and asked us to join them. We now made a party of six, with seven camels.

#### The Want of Water.

We reached Mucha at 2 30 p.m. on January 22, and found the water had evaporated and was now salt. We found Moon and Hall with horses, who had been ahead of us and returned in a bad state, having thrown away most of their rations, and been living on the salt water. We gave them several gallons of fresh water to reach Coolgardie with. Thomson and Young were also here, and in making back one of their camels had died. One of the party got out his map, and showed—not to Carr Boyd's and my satisfaction—that we were 18 miles north-east of Mucha, and that we must travel all next day to cut that place. So the following day we started off, and travelled till 5 30 p.m. I wanted all of us to go on about five miles further to a granite rock, but some objected. Accordingly two of us walked on to the rocks to seek water—all water here being, as a rule, held in granite rocks. Hearing bells in the distance we made for them, and found Harry Herbert with nine horses at a rock hole using up the water. So Jim and I went back. Payne, Dave, and I came on with the kegs to get what water we could, which only turned out to be five gallons, and found—not with pleasure to the owner of the map—that we had left Mucha, the place we were after in the morning, also that all the water holes were empty, and that Fitzgerald had lost four horses, and his mates were in a bad way at the field. Our first consideration now was water, not gold. We were now at Cowaina. Going east on Wednesday we reached Cardunia, and found a little water, both fresh and salt, in some socks.

#### With the Natives.

We here held a consultation as to future proceedings. After some difference of opinion we decided not to turn back while we had 12 gallons of water in our kegs. Payne and Joe were started for the field with five days' provisions and three and a half days' water and the two best camels. Carr went south for water. I kept the sack going with a pannikin, and Jim and Dave got all the salt water they could. At night Carr came back saying he had found water 10 miles off, and had watered his camels. On Friday all but Jim made for this water, taking three camels with us. Here about a dozen blacks came to us, after laying down their spears, &c. We gave them damper and meat, and after a deal of trouble made them understand we wanted water (gabbie), and one of them to take us to it. To which the smartest agreed, dressed in his Sunday best, viz., a belt. We named this fellow "Snowball," and promised to come back the next day for "Julia." We made for the camp, having got 15 gallons of water in the kegs, leaving some in the rocks for the blacks, which we reached at 6 30 p.m. To our great surprise we found Payne and Joe had come back at noon, saying they had travelled all night, and could find nothing. They met Gooch and Conliffe, who were turning back, saying they had had a regular perisher. Had Payne and Joe been able to go on, they would have reached the field before the rash took place, and we should have probably netted a nice lot of gold, as the nuggets were lying on the surface. Now the fun began. We travelled from day to day from one water to another, Snowball and Julia saying they would take us where Nada (white man) picked up big fellow gold, also plenty gabbie. Of course we thought this must be the same place as we were after. After travelling till February 6 we found that the place where "plenty pick-em-up-gold" was where some one had tried a few dishes and got colours only. There being good water and feed at this place, "Yendering" and Snowball saying "Catch-em-gold dinner-time," Dave and self, with Snowball and another black—there were eight blacks following us now—started off and walked for 18 miles. Tried several places, got nice colours, but not good enough to stay on, so we walked back 9 miles, ate all we had and drank all the water, and camped fairly tired, as the walking was very rough in places. We passed a bitterly cold night, as we only had our shirts and trousers on and no rugs. While here the rest of the party came on.

#### Further Discomforts.

That night we decided to make Coolgardie via the field (now known as Kurnalpie). We had 120 gallons on board, and were 160 miles from Coolgardie, and very short of tucker. We allowed ourselves on 2 ounces meat, 1½ ounces bacon, 4 ounces flour, 1 gallon water. We walked about 20 miles a day. In crossing the salt lakes the camels slipped down twice. Carr, Jim, and Dave were now to make the field with one camel and nearly all rations, while the rest of us with the camels went into Coolgardie for rations. The two days we were here the blacks belonging to our party watched everything with eyes wide open with astonishment, as they had never seen a settlement before. You will be amused at the contents of the savoury dish we made for them, and would, perhaps, like to have the recipe, viz.:—2 lbs. candles, flour, fat, oatmeal, and any scraps around the camp, all mixed, and made into a sort of savoury damper. We also fed them on sheep's heads, which they seemed to relish very much. On February 21 we loaded up with stores and made for the field—Kurnalpie. Of course by this time the great rush had taken place. We reached there on Monday, the 26th, at noon, four of us having been ill on the way, my heels having been blistered with new boots, the others having been worn right through. On Tuesday I went to Mucha to condense with Young for the two parties—11 men and three camels. We had to work night and day to do it, and finished on the following Tuesday. I went up with the camel-load, starting late, about 8 miles from the camp it got dark. I had to pick my way, carrying firesticks, which, to say the least of it, is very awkward. Payne, Dave, and Jim had only 4½ ounces of gold by this time, having been trying the reefs. I had to come back to Coolgardie to look after a lease. From there I went to the Ninety Mile, and am now back to Coolgardie, where I can wash every day. As for the last month or two, I have only been able to wash my hands and face every Sunday. You may be sure Sunday is a red-letter day to all of us. I should advise enquiring friends to keep away from Coolgardie, as there are here already about five times as many men as are required.—The Globe.

We learn from the *Daily Inter-Mountain*, Montana, that some very rich ore is being taken out of the Jennie Dell. This property adjoins the Eveline, from which some rich ore was taken out last year. Some of the ore from the former property assays nearly 600 ounces in silver and \$146 in gold to the ton, and the lead is 21 inches wide.



## GEOLOGY AND MINERALOGY OF SHASTA COUNTY.

By HAROLD W. FAIRBANKS, F.G.S.A.  
From the Californian State Mineralogist.

X.

(Continued from page 684.)

JUST south of Muletown is an outcrop of micaceous syenite. Between this point and Clear Creek nothing but syenite is seen, and it also appears to be the prevailing rock over a considerable extent of country west of the creek, but is separated from the granitic diorite of Mount Bally by a considerable width of metamorphic rock. One half mile south of Muletown all the bodies of intrusive rock are replaced by slates and light-coloured talcose schists. The main quartz veins of this district run north and south. Nearly all the surface on the western slope of the mountain down to Clear Lake was very rich in placers. One principal vein, running north and south over the mountain, is traced for some distance at the contact of syenite and quartz porphyry. West of it is a vein in the syenite, and on the flat at the foot of the mountain are other veins, either in the syenite or at the contact with a stratum of hornblende rock. These veins dip east at a very high angle. The main vein after it leaves the syenite continues across the southern end of the mountain in the schists, cutting them at a large angle and preserving a constant course. These veins are developed only by surface work, except in two instances, where tunnels of some length have been run. The ore is mostly sulphurets, with little free gold below the water line. The region has been a favourite one for pocket hunters. The sulphurets are rich, but there is no extensive development to show the real character of the district. On the north end of Muletown Mountain a rich east and west vein occurs. In the syenitic granite just south of Muletown, for a distance of over 100 feet east and west, there are minute parallel veins of quartz  $\frac{1}{2}$  to  $1\frac{1}{2}$  inch wide, which strike north  $80^\circ$  west. They dip west  $85^\circ$ , and are remarkably even and regular. The veins are from 4 inches to 1 foot apart. Some show a decay of the syenite along each side with a little appearance of slickensides, indicating a fissure; while others are frozen to the rock. Some seams parallel to these show polished sides and no quartz. As the quartz weathers out the syenite, though perfectly massive, assumes the appearance of a bedded rock. Some cross cracks exist, which in one case has caused a vein to jump; not a faulting of the rock, as the adjoining veins are not disturbed. (Fig. 3.)

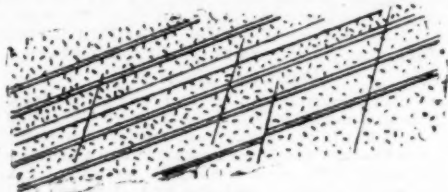


FIG. 3.

These are barren, though irregular and bumpy veins near by contain gold.

### A Compact Conglomerate

appears about 2 miles north of Horsetown in the sides and bottom of the gulches. This is formed of the various rocks which go to make up the southern end of Muletown Mountain. It dips south-east at an angle of  $15^\circ$ , and in that direction is gradually succeeded by sandstones. A minute quartz vein appears in this conglomerate, filling a crack which has been formed since its solidification, for the vein follows a direct course through pebbles and matrix. Sandstones, nearly horizontal, and containing some fossils, outcrop on Jackass Flat, a little south of Centerville. North and west of Horsetown there is a small outcrop of granite. A brown sandstone rests on the granite. It is inclined east at an angle of  $20^\circ$ , and contains numerous fossils, among which are ammonites. This is the locality from which the Horsetown beds were named. They constitute the next to the lowest division of the cretaceous in this State. The fossils occur in concretionary nodules.

Horsetown is another example of the early mining town once sustained by the placers, but now entirely gone to decay. One mile east of Horsetown, on the north side of Clear Creek, is an outcrop of the metamorphic series. It consists of fine, cleavable, and highly altered slate inclosing a body of gray limestone. The strike is north  $30^\circ$  west, dip  $40^\circ$  to the east. The limestone appears to be not over 100 feet thick, and lenticular in shape, as it outcrops for a few hundred feet only. A number of faint coral forms were gathered; they weather out on the surface. Lime has been quite extensively burned here at some period. A short distance west of the limestone the slates strike  $65^\circ$  west, and are quite talcose.

South of Clear Creek the country is entirely covered with stratified gravel deposits, sloping gently toward the Sacramento. The streams have worn shallow valleys in them. North of the creek, where the gravels are shallow, much

### Placer Mining

has been carried on. A half mile west of the limestone the strata dip  $30^\circ$  to the east, but between Horsetown and Centerville, wherever exposed, the dip is very steep.

Going east from Centerville we soon strike a porphyritic diorite similar to several of the dykes on Muletown Mountain. Occasionally strata of green schistose rocks occur in it; strike north and south, dip east. This diorite outcrops along the road 2 miles, though I do not think it extends far north and south. On the east it is finally covered by cretaceous sandstones, rich in fossils, which dip south-east at a small angle. The sandstone does not extend far until it becomes covered by the quaternary gravel.

The Old Diggings and Churntown districts, north of Redding, were not examined as extensively as some other portions of the country, for the reason that a lengthy report was given of them in the last annual publication of the Mining Bureau.

(To be continued.)

**A RAND AMALGAMATION.**—The directors of the Ferreira Gold Mining Company propose that the property of the Wemmer, Ferreira, and Worcester Deep Level Gold Mining Company should be acquired for 44,000 Ferreira shares, and that an exchange of claims should take place with the Rand Mines (Limited), the latter surrendering one claim on the dip of the Ferreira Mine, and £3000 cash in return for six claims near the Ferreira pumping station. The Wemmer, Ferreira, and Worcester property consists of about 30 claims, covering the whole of the dip of the Worcester and Ferreira Mines and about half of the dip of the Wemmer ground. The capital is to be increased to £90,000 if the shareholders so decide at the special meeting on August 14, and 1000 shares will be held in reserve. It is proposed that the present 40 stamps should have 20 stamps added to them.

**ALGERIAN MINING.**—The U.S.A. Consul writes:—The mines of Beni-saf formerly consisted of only a few mineral beds, but now the Compagnie des Minerais de Fer magnétique de Mokta-el-Hadid (head office, 26, Avenue de l'Opéra, Paris) has bought up all the beds of iron ore, Bourkourdan excepted, of the Ouelhassas Cheraghas ore district, formerly a part of the military territory of Tlemcen, of which Beni-saf is at present the political centre. The iron region of the Ouelhassas has been admirably studied by the celebrated geologist, Mr. Pouyanne, chief mining engineer at Algiers (see his report in the *Annales des Mines*, volume ix., 1876). The ore consists of peroxide of iron. There are several species, but they are mostly of red hematites, containing more or less manganese, to which they owe their brownish red and sometimes black colour, closely associated with compact and hard limestone of the secondary period. Its hardness is variable—generally great at the surface of the beds; it often diminishes below and becomes powdery. The richness of the beds greatly varies, and all the degrees of mineralisation are to be found, from the purest ore containing 61 per cent. of pure metal to the limestone containing hardly any. Very important beds, averaging from 55 to 60 per cent. of pure iron, enable the Mokta-el-Hadid Company to sell their "Tafna ore" at a warranted percentage of 55. The iron region of the Ouelhassas consists of 31 recognised beds of iron ore, forming nine distinct groups; but from a topographical point of view these may be reduced to four, viz.: (1) That of Beni-saf, including the beds of Dar-Rih and of Ral-el-Baroud (powder grotto); (2) that of Tani-Krent; (3) that of Djebel-Haouaria (formerly the property of the English company of Camerata); and (4) that of Sidi-Saf. In the year 1874 work was begun on several beds and proved more or less successful. At present but one is being worked—that of Ral-el-Baroud—and the results are quite satisfactory. No accurate estimate of the quantity of ore likely to be profitably extracted from these mines can at present be stated, for the company has undertaken but few new soundings, and the valuation given by Mr. Pouyanne in his report of 1876 remains unchanged. An idea of the importance of the beds can, however, be formed by considering the fact that since the year 1874 over 4,000,000 tons of ore have been shipped from the port of Beni-saf to various parts of the world, and that the layers are far from being exhausted. The ore at Beni-saf is worked in open layers, the underground works being only meant to meet prospecting purposes, and to facilitate the means of conveying the ore from the place of extraction to the port. The ore reaches the harbour in trucks by means of a railway on an ordinary grade, both horse and steam power being used, and by gradients upon which the force of gravity is utilised. There is but one loading berth. The ore reaches it by means of the railway tracks direct from the mines. The facilities of lading are such that cargoes of over 2000 tons are easily shipped in 24 working hours.

**INDIAN MINE LABOUR.**—At a largely-attended meeting of representatives of the Indian Mining Association held at Calcutta, on Wednesday, a resolution was unanimously carried expressing strong disapproval of any attempt of the Government to interfere with the existing labour system in the mining districts. Mr. Grundy, the British delegate, was present at the meeting.

Messrs. F. A. Robinson and Co., Engineers, late of 69, Cornhill, E.C., have, in consequence of the rebuilding of these premises, taken offices at 54, Old Broad Street, E.C.

## COMPANIES AND LEGAL ANNOUNCEMENTS.

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NOTICE IS HEREBY GIVEN, that the SEVENTH ORDINARY GENERAL MEETING of the Shareholders of this Company will be held at the Terminus Hotel, Cannon Street, in the City of London, on FRIDAY, the 29th day of June, 1894, at 2.30 p.m., in order to receive the Report of the Directors, and a Statement of Accounts made up to the 31st December, 1893; and to transact such other business as may be incidental to the Meeting.

Holders of Share Warrants to Bearer will receive a ticket of admission to the Meeting on depositing their Warrants at the Company's Office, in accordance with the Articles of Association, two clear days previous to the Meeting.

The Transfer Books will be closed from Thursday, the 21st day of June, to Friday, the 29th day of June, both days inclusive.

By order of the Board,

C. LEWIS BENNETT, Secretary.

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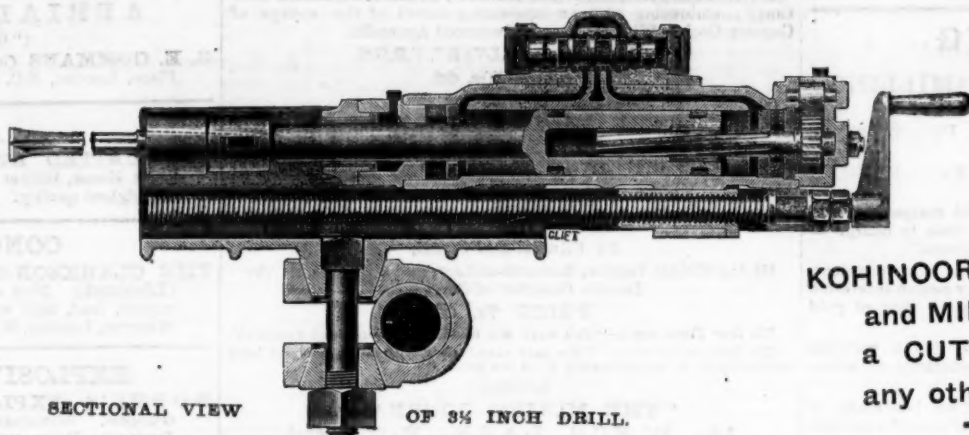


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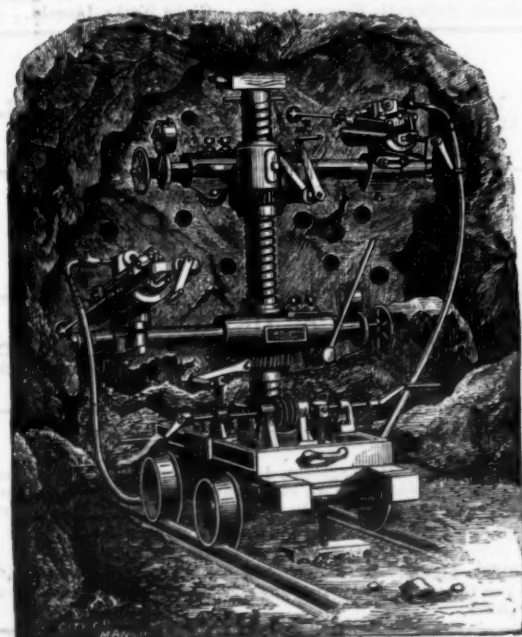
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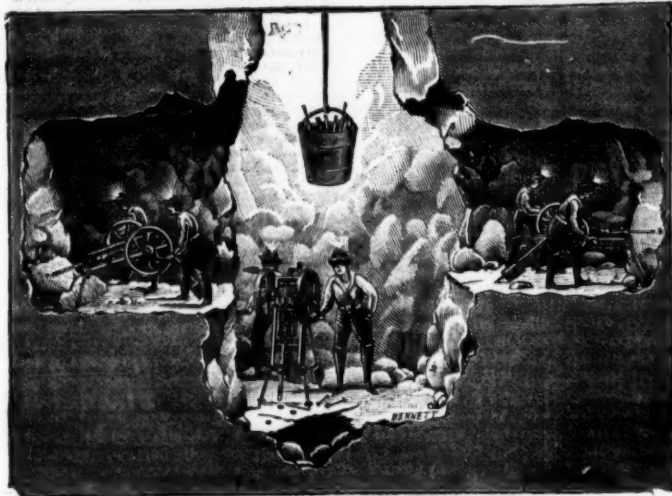
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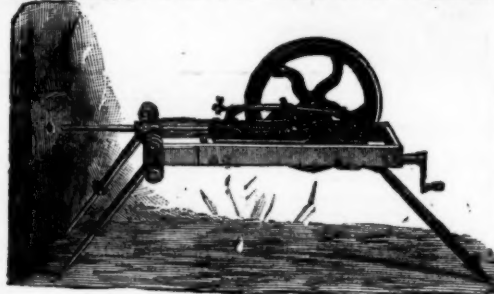
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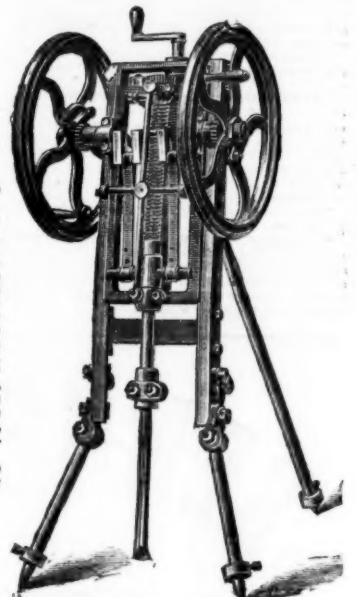
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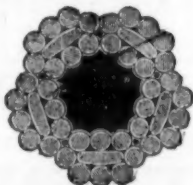
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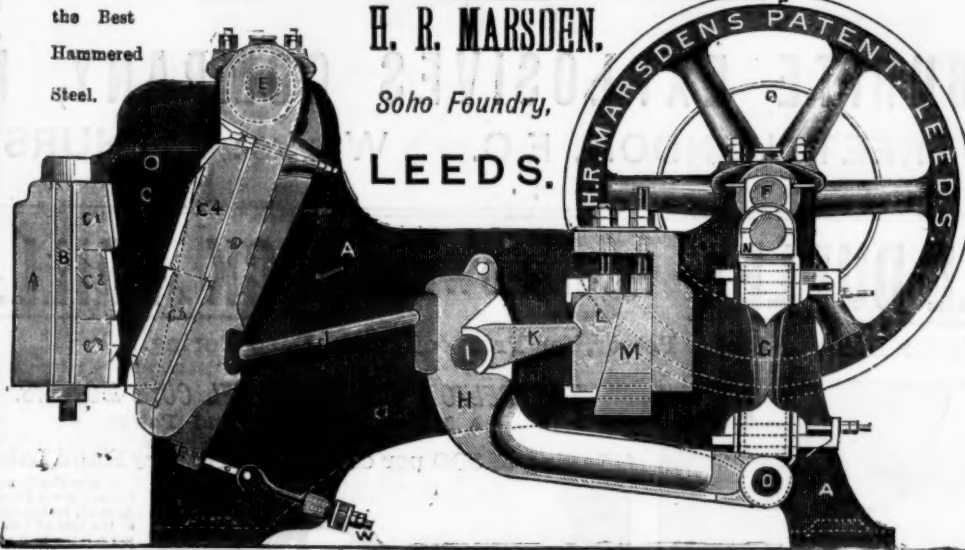
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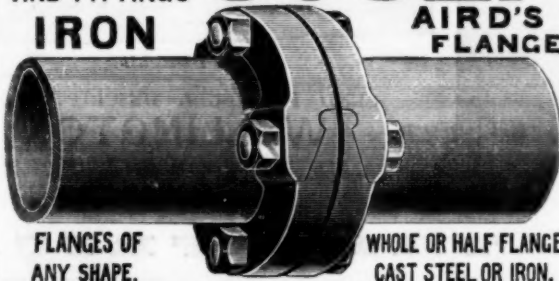
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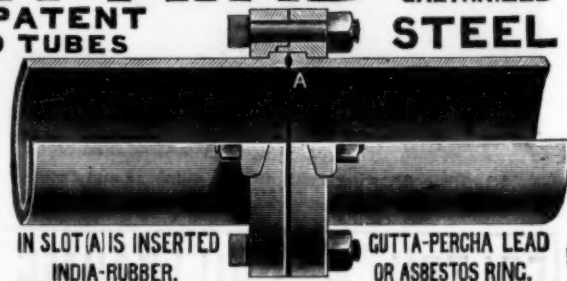
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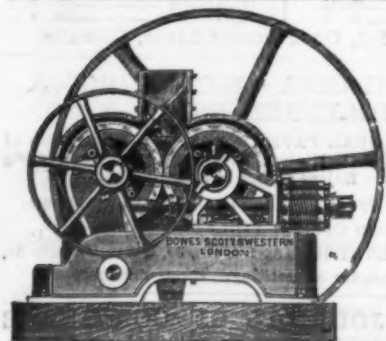
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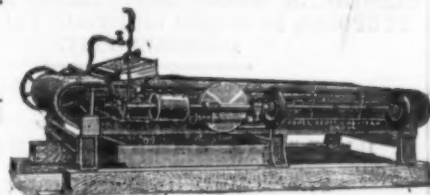
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